SPECIALIZATION IN HARAPPAN POTTERY PRODUCTION: A CASE STUDY FROM GUJARAT

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By

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CERTIFICATE

This is to certify that the thesis entitled **"Specialization in Harappan Pottery Production: A Case Study from Gujarat"** incorporates the results of the original research work carried out by Vinod. V, under my supervision. The indebtedness to other works has been duly acknowledged at relevant places.

November 2010

Professor K. Krishnan
(Guiding Teacher)

Professor K. Krishnan
(Head, Department of Archaeology and Acient History)

DEDICATED TO MY PARENTS

Who has been a great source of inspiration

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Synopsis

Introduction

The proposed research work entitled **Specialization in Harappan Pottery Production: A case study from Gujarat** is an attempt to define different Harappan potteries of Gujarat from a typo-technological point of view by taking Bagasra (23^0 03' 30" N, 70^0 37" 00" E) as a type site. Further this study would be extended to other Harappan sites of Gujarat. The study will lead to understanding the aspect of Standardization in the Harappan pottery production. Understanding standardization is significant as it proceeds towards studying craft specialization, which forms an integral part of Indus Urbanization.

As far as the Indus valley civilization is concerned Gujarat is the best explored and excavated state of India after independence. Although the core region of the Harappan Civilization lies in the Indus Valley, the presence of a large number of Harappan sites of varying cultural milieu in Gujarat indicates that this region

enjoyed equal importance during the Harappan Period. Some of the important excavated Harappan sites of Gujarat are Dholavira (Bisht, 1989), Surkotada (Joshi, 1990), Kuntasi (Dhavalikar et.al, 1996), Nageswar, (Hegde et.al, 1990) Nagwada (Hegde et.al, 1988), Rojdi (Possehl and Herman, 1989), Padri (Shinde, 1992) Rangpur (Rao, 1963), Lothal (Rao, 1979 & 1985) etc. The study of material remains from these and other excavated sites along with the explored materials from various parts of Gujarat have enhanced our understanding of Harappans and at the same time given rise to various debatable issues. These include their varying subsistence pattern from one region to another; regional identities; varieties of ceramics, often referred to as typical/classical, regional/indigenous and also specific types indicative of their contact with contemporary Chalcolithic cultures; their relation with the surrounding geomorphology, significance of location of settlements, function of the settlements etc. Each of these issues offers tremendous potentials to be tackled independently. The present study addresses the need to understand the ceramic varieties and standardise them from a typo-technological point of view.

Rao's (1963) cultural sequence at Rangpur acted as the chronology of the Harappan sites in Gujarat for a long time. At Rangpur, he identified three periods, period I - Microlithic Culture, period II - Harappan culture, period III - Lustrous Red Ware or Post Harappan Culture. He further divided Rangpur II or the Harappan Culture in to three phases, IIA, IIB, and IIC. He termed IIA as the Mature Harappan Culture, IIB as the Late or degenerate Harappan Culture and IIC as the transition phase of the Harappan Culture. Thus, Rangpur for the first time revealed a stratigraphical relation between the Late Harappan Phase (Rangpur IIB) and the Mature Harappans (Rangpur IIA). It was believed that most of the sites with an affiliation to Harappan Culture found in Saurashtra belonged to the Late Harappan or Post Urban phase (Possehl, 1989: 19). This argument was mainly based on the mixed subsistence economy involving both pastoralism and agriculture and the stylistic comparison of the ceramics and was not supported by

any carbon14 dates. The excavation at Rojdi revealed three phases, labelled as Rojdi A, B and C. In general, the material assemblage of Rojdi A, B and C resembles that of Rangpur II B and C and the other related sites. The carbon 14 dates from Rojdi also indicate that all the sites in Saurashtra with the pottery from these two phases should be dated to the urban Harappan phase and not to the post urban or late phase (Possehl, 1992: 125-128)). Thus Rojdi and many other sites in Saurashtra represent a newly discovered regional expansion of the Harappan urban phase and Possehl proposed the new name 'Sorath Harappan' to the new regional urban phase culture (Possehl, 1989: 13). He also identified 152 rural settlements as Sorath Harappan (Possehl, 1989: 13). Most of these settlements are small with a stone foundation and a stone wall and have been interpreted as small rural villages and dry seasonal camps of those engaged in millet cultivation and pastoral subsistence (Possehl, 1989: 27-50).

Further, Possehl (1989) broadly categorised the Harappan sites of Gujarat as 'Sindhi' and 'Sorath Harappans'. He defines 'Sindhi Harappans' of Gujarat as the Harappans who settled mainly in and around Kutch. They have the same cultural tradition or possess elements of the typical Harappans. These are enumerated by him as the inscribed stamp seals, Indus weights, metal works, beads, architecture and ceramics painted in classic black on red style known from the places like Mohenjodaro, Harappa, Kalibangan, Amri etc (Possehl, 1989:10). Possehl argues that the Sindhi Harappans were the people of Sindh who migrated to Saurashtra through Kutch, the present border area of Gujarat about 2500 BC. They seem to have come to Gujarat in an effort to assess and utilise the material wealth of this region (Possehl, 1989:11). According to him, the main Sindhi Harappan sites in Gujarat are Surkotada, Desalpur, Pabumath, Dholavira, Nageswar, Nagwada and Lothal. The Sindhi Harappans share the material inventory of Harappan sites of Sindh along with the local/non-Harappan and early/pre-Harappan ceramic types (Bhan, 1989). Majority of these settlements seem to have developed to facilitate administration, which is reflected in the construction of massive lime stone walls

and bastions at Surkotada, Dholavira and Desalpur and for trade and also to access raw materials as indicated by the material inventory and location of the settlements of Nagwada and Moti Pipli in north Gujarat, Nageshwar and Lothal in Saurashtra (Bhan, 1994). The recent excavations at the site like Loteshwar, Dholavira, Lothal Padre, Datrana, Prabhas Patan, Motipipli, Surkotada,etc indicate that even prior to the integration era Gujarat was inhabitated by the Chalcolithic communities(Sonawane and Ajith Prasad 1994,2002). These Pre Harappan, Pre-Harappan/Non-Harappan communities can be identified based on their archaeological characteristics and geographical locations. They are the Anarta Tradition (North Gujarat), Micaceous Red Ware and Padri Ware (Gulf of Kambat), Pre- Prabhas (Prabhas Patan region) and a Poly chrome tradition of Kutch region. Some of the recent studies (Possehl 1992) further made a categorization of the Harappan culture in Gujarat in to Sindhi Harappan, showing close connection with the Indus proper and Sorath Harappan having a strong regional identity.

Thus the studies brings out a more detailed picture of the chalcolithic communities of Gujarat and at the same time produce several questions like the regionality, local development, independent existence etc. All most all these studies are based on the typology of the ceramics. External features, decorative motifs etc were given prime importance and based on that several culture/traditions were established. Most times these traditions were identified in to different compartments and shows independent evolution at many excavated sites. No real attempt has been done to evaluate it from a holistic point of view. Once you look these traditions and ceramic assemblage you can find that these changes and classifications are really minor variations due to the local geology, climate, and activities of a particular region. On the whole they all are the same which is reflected materialistically different. So here instead of making classifications over classifications and cultural divisions once has to view the growth or change of a culture in a more prolonged way and new methods were developed to understand the changing perspective archaeology instead of making

different water tight compartments. The excavations at Bagasra revealed the existence of all the above mentioned cultures together at in one particular site in a stratified context for the first time in Gujarat. Moreover the strategic location and the rich archaeological potential enhance the relevance of the site. In such a context the study of ceramics from a site like Bagasra is crucial in explaining the cultural trajectory of the Harappans in Gujarat, particularly in the mature Harappan phase.

Major Objectives of Research

(1) Define the different ceramic traditions at Bagasra.
(2) Identify the development of ceramic manufacture at Bagasra in relation with its sequence.
(3) Identify the provenance, technique of manufacturing and distribution pattern of the Harappans at the site.
(4) Attempt to recognize the similarities /differences between Sorath and Sindhi Harappan Ceramics.
(5) Identify the degree of specialization on ceramic production at Bagasra.
(6) Compare the results with major studied sites like Nageshwar (Krishnan 1986), Nagwada (Shah 2001) and Padri (Bhagat 2000) to appreciate the level of standardization in Harappan ceramic production.
(7) A proposed model for understanding specialization on archaeological ceramics.

With the above purpose the ceramics of Bagasra were allowed to go through different methods of analysis as each of the methods were employed with specific objectives. A combination of four methods has been used for the analysis. Typology has been considered for analysis as it provide a relative chronology to the site and samples and also help in ordering the ceramics for any type of analysis and thus it provide a base for all analysis. In order to understand the technology of manufacture and provenance of the raw material thin section analysis has been opted. Further an ethnographic analysis has also been carried out

around the study area in order to get an idea about the local geology, site formation and local traditions existing around the site. After considering the visible and recordable attributes which may reflect the skill and organization of the potter, a morpho metric analysis was also included in the study. Thus as a whole a combination of four major methods has been considered for the analysis.

The following write up shows division of the thesis in to six chapters. They are:

Chapter I Introduction

The chapter will outline the significance of the research work. The chapter consist of the background of study, its significance and the major objectives. It may discuss the ideas used in formulating the research problem.

Chapter II- Ceramic Analysis on Indian sub-continent and the Harappan Culture

It contains a review of the major ceramic studies on Indian sub-continent. It may further converse the present status of the Harappan studies. It may also emphasis on the significance of such studies in developing a better understanding on Harappan culture. It includes a detailed discussion on the Harappan culture in Gujarat with special reference to Gujarat. For the ease of working and better understanding the site the study followed the Phase wise Division which is based on the differences in architecture and antiquities.

Chapter III-Methods and Materials

Chapter III deals with the methods adopted for study. It includes the nature of the samples, strategies adopted for sampling and the justification for the selection of the methods for analysis. Here a combination of four methods has been considered for analysis and justified the selection through arguments. They are the typological analysis, Thin-section analysis, Morpho metric analysis and an Ethnographic study. Each method has been dealt individually and explains their technical constraints.

Chapter IV- Analysis and Results

Chapter four exclusively deals with the analysis and its results mainly in four parts. Part I deals with the typological analysis, that do an ordering of the samples and device a relative chronology for the samples and the site and a base for further analysis. Part II is the thin section analysis where selected representative samples were allowed to go through a microscopic thin section analysis and their results. Part III is an ethnographic study around the site and the last part deal with a morpho metric analysis of the selected samples from Bagasra.

Chapter V- Discussion

Chapter five contains a discussion over the result of the analysis. it discuss the typological aspects of the ceramics in comparison with the scientific analysis. The chapter will further evaluate the validity of the ethnographic exercise (model) and its application on archaeological samples at Bagasra. An attempt has been made to see the specialization reflected on the archaeological ceramics at Bagasra and tried to define the concept and parameters of specialization. Here, the relationship between specialist, standardization, the context of production and raw material processing techniques and the role of environment in making a quality final product has been discussed.

Chapter VI Conclusion

This chapter will conclude the major results and validity of the model and its applicability on archaeological context. The result of the analysis will further compare with the sites like Naheshwar, Nagwada and Padri in order to appreciate the level of Specializatio/standardization on Harappan ceramic production.

Appendix

This part will contain various tables or data that will support the observations, arguments and propositions made in the thesis.

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STATEMENT I

(Statement showing the particulars, on which the work is based , the discovery of new facts and of new relationships between facts observed by others and how the work tends to help the general advancement of the knowledge)

The Harappan Culture in Gujarat were mainly understood through the ceramic data generated from explorations and excavations carried out at different parts of Gujarat. However, a complete picture of these cultures could not be re-constructed as the discussions of the previous researchers were based only on artefact type. With the changing perception and the recent trends it is necessary to try, test and carryout new, systematic and more scientific studies to identify the cultural trajectory of the Harappans in Gujarat. This led to the analysis of the artefacts using different methods in combination. This has brought to light various results regarding the Gujarat Harappans in general and Bagasra in particular.

The major results of the study are

1. From the examination and re-arrangement of the artifacts based on structural phases at Bagasra shows that Phase II is the most organized period at the site and all the economic activities are in full swing during this time and are mostly located inside the fortification shows an organized way of production was existed at the site during this phase.
2. The site yielded indications of craft production like shell bangles, beads and blades, copper activity and faience working which can be extracted from the huge amount of manufacturing waste showing different stages of production along with the finished goods.
3. Phase II and III shows evidence of contacts with other sites which is evident from the long chert blades (Rohri Chert Blades) etched and long carnelian and lapis lazuli beads and the some deluxe wares like Black and Red ware and the Black Slipped jars.

4. The production of local chert blades and beads made out of locally available chert (Blood Stone?) clearly indicate the knowledge of the local raw material source and local trade network.
5. The ceramics were produced at the site was produced locally by using the locally available clay and continued the production in full swing even after Phase III.
6. The analysis shows that the clays were collected at least from four major sources and is matching with the local geology.
7. Same clay and different methods has been used for making different wares and shapes at Bagasra.
8. The morphometric analysis shows that among the shapes pots are the most standard shape at Bagasra which is followed by bowls and basins.
9. Bowls show a considerable change in their size and rim features It is the shape with most variations in phase I and the shape with least variations in Phase IV. It shows changing trend in food habit and preference of different shapes over the other by the people at the site.
10. Dishes at Bagasra are in an inverse relation with the bowls. It is the most standard vessel form in phase I and least standard at Phase IV.
11. Phase IV produces lesser variant or more uniform ceramics. Here the major wares, shapes, texture shows less variants but reached the total production at its maximum. No compromise has been done with the quality except in case of losing the classical shapes and decorations.
12. The ethno archaeological study shows that sometimes the part time specialist can even produce more standard product than the full time specialists.
13. Workshop 4 and Workshop 5 (considering as part time specialists) produces less variable/more standard products than Workshop 3 and workshop 1 (full time specialist).
14. The normal production by the specialist at W1 and production under exclusive instruction/demand (W1D) brings a difference in the quality and

in the variation. It estimates a strong direction or constant demand from the part of consumers/elite can enhance the reduction in variation or standardization.

15. The division of labour also generates uniformity and a desired quality to the product. The micro specialization at Jajasar (W2), where each stage of potting is done by different members of the family brings enormous degree of specialization compared to the single specialists who controls all the stages of production at other workshops.
16. The use of advanced tools (e.g., Electric wheel at Jajasar) and separate provisions for different stages (square and round champers for clay paste preparation at Jajasar and Mota Bela), separate kilns for different size and shapes(Bavpar and Jajasar) shows the different levels of specialization and the degree of standardization reflected on the products.
17. The skill and the adaptation of the potter to the changing environment and demand also facilitate the quality of the product and the notion of standardization.
18. The study (model) tested against the archaeological samples at Bagasra shows that the degree of standardization can be estimated successfully with the help of composite approaches. It may vary with the selection of the parameters that reflect the degree of standardization and has to be worked out according to the nature of the site and the samples.

STATEMENT II

(Statement indicating the sources of information and the extent to which the thesis is based on the work of others and the portion of the thesis claimed as original)

The study is based on ceramics and other artifacts (movable and immovable) from Bagasra, Gujarat through systematic exploration and excavation. The published books, reports, reviews, and articles on previous researches helped in

understanding the environmental and archaeological aspects, formulating strategies of exploration, data collection, artifact analysis and data analysis. For comparison and correlation of artifact data, excavation reports of Lothal, Rangpur, Surkotada, Rojdi, Somnath, Nageshwar and Nagwada were referred. Along with this the results of the study were correlated with the works like, Krishnan (1986), Bhagat, S (2001) and Shah, K (2001) in order to appreciate the level of the standardization of the Harappans. The following is the list of selected references consulted for the present study.

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The portion of the thesis claimed as original is the typological, thin section and morpho metric analysis of the chalcolithic pottery from Bagasra. The samples collected through the ethno archaeological survey by the investigator, its analysis and interpretation and comparison of the results with other sites is the novel part of the thesis. An attempt has been made to device a methodology to understand the craft specialization reflected on archaeological ceramics. Here a combination of four methods has been considered and successfully tested against archaeological samples are also to be considered as original contributions of this work.

Chapter 1 : Introduction

Harappans are considered as the first urban culture of the Indian sub continent dating back to third millennium BC. They are noted for their town planning, monumental architecture, art, organization of trade and commerce, art of writing, system of weights and measures etc. Their talent and artistic snobbery is reflected on the material culture and no doubt they were superior and ahead of time in their technology and skill. They possessed unique technologies of construction, stone carving, seal cutting, bead making, extraction of metal from ores, production of stone bangles, faience and pottery. They kept the uniqueness and individuality along with superior craftsmanship and quality that made them different from others. Many attempts have been made to compare this culture with the worlds ranking civilizations of ancient time, tried to explain its ancestry and trajectory. But no serious attempt has been done to visualize or understand the nature of urban or degree of urbanization exhibited by the Harappans. The present study entitled "Specialization in Harappan Pottery Production: A Case Study from Gujarat" is an attempt to understand the aspect of Standardization in the Harappan pottery production. Understanding standardization is significant as it proceeds

towards studying craft specialization, which forms an integral part of Indus Urbanization. As far as the material identity of the Harappans are concerned ceramics stand tall in its uniqueness and abundance irrespective of the nature of the site and region. Even though pottery possesses some regional variations, it remains the basic for periodization and explanation of the Harappan culture. So is why ceramics being selected for the present study.

Gujarat is one of the best explored and excavated areas as far as Harappan Culture is concerned. The recent studies brings out a more detailed picture of the Chalcolithic communities of Gujarat and at the same time produce several questions pertaining to the regionality, local development, independent existence etc. Almost all these studies are based on the typology of the ceramics. External features and decorative motifs were given prime importance and based on that several cultures/traditions were established. Most times these traditions were identified in different compartments and shows independent evolution at many excavated sites. No real attempt has been done to evaluate it from a holistic point of view. When one looks at these traditions and ceramic assemblage one can find that these changes and classifications are really minor and are primarily due to the local geology, climate and activities of a particular region. On the whole they all are the same which is reflected materialistically different. So, instead of making classifications over classifications and cultural divisions one has to view the growth or change of culture in a more prolonged way and new modes and methodologies should be developed to understand the changing perspectives. The excavations at Bagasra revealed the existence of Sindhi, Sorath, and Anarta cultural tradition together at one particular site in a stratified context for the first time in Gujarat. Moreover the strategic location and the rich archaeological potential enhance the relevance of the site. In such a context the study of ceramics from a site like Bagasra is crucial in explaining the cultural trajectory of the Harappans in Gujarat, particularly in the Mature Harappan phase. Moreover, no studies have addressed the Indus Urbanization from a typo-technological view

of ceramics. The study is also significant as it approaches the ceramics from a typo technological point of view.

Craft specialization, its origin, organization and associated technologies is an important topic in archaeological research. Specialized production of subsistence resources and durable craft goods has been viewed as a defining characteristic of socio-political complexity and its study as key to understand economic and socio political structures of complex societies. It could be easily argued that the process of urbanization or the different stages of development/change of a production system or organization can be best established by understanding the paradigm of craft specialization. The word craft can be defined as an art of creation. The social, economic, political, psychological and environmental factors determine the working status of a craft. Most archaeological studies attempt to identify increasing levels of craft specialization as an indicator of increasing social complexity. It interprets craft specialization as more specialized production which is supplemented with more standard product. Thus it is viewed as an economizing behavior best indicated by efficient techniques, standardized products and increased output (Clark and Parry 1990:293).

The idea of Craft Specialization has got a philosophical interest just before the industrial revolution. Rousseaue (1779), AdamSmith (1776), followed by Marx (1867), Engles (1872), Childe (1950), Harris (1959) and Quigley (1961) proposed surplus food and leisure time as one of the reason for the origin of specialization. Adam Smith's idea of connecting degree of specialized craft production with complex societies is still accepted and the increasing level of specialization is taking in archaeological studies as the indicator of increasing social complexity (C.f. Clark and Parry 1990:292). P.M Rice views craft specialization as it is due to a situation where access to raw material is restricted to a particular social segment (Rice 1981:220). Adam Smith's classic example of pin factory is a very good argument towards the understanding of specialization in craft. The introduction of

division of labour resulted in the increase of workman's skill, reduced manufacturing time and increase in output. Individual production increased from 20 pin per craftsman to 48,000 (C.f. Clark and Parry 1990:292). So the specialization is reflected in the way as the increase efficiency in production, and increased output of a standard product. Craftsmen have a responsibility to the society and also a solid backing from the factors of production. It is benefited through the symbiotic relationship between the craftman or producer and the general public or consumer.

The present study deals with the ceramics from Bagasra (Gola Dhora), a Mature Harappan site located in the eastern extremity of Gulf of Kachchh in Maliya Taluka, Rajkot District, Gujarat State. The site is located at a strategic point connecting Kachchh, North Gujarat, and Saurashtra, the three major cultural regions of Gujarat and shows distinct cultural traits of Sindhi, Sorath and Anarta in the Chalcolithic times (Sonawane et.al. 2003). The present study attempts to understand the specialization reflected in archaeological ceramics at Bagasra in order to understand the nature and degree of specialization of the Harappans of Gujarat in general and at the site in particular. The study deals with the ceramics in a typo-technological point of view. An investigation will be done on the technique of ceramic manufacture of the Harappans, provenance of the clay, and the organization of production and distribution. The study will deal with a model towards explaining the craft specialization and it will be tested over the archaeological samples from Bagasra.

Major objectives of the research are

1. Define the different ceramic traditions at Bagasra typologically
2. Identify the development of ceramic manufacture at Bagasra in relation with its sequence
3. Identify the provenance, technique of manufacturing and distribution pattern of the Harappan ceramics at the site

4. Attempt to recognize the similarities/differences between Sorath and Sindhi Harappan Ceramics
5. Identify the degree of specialization in ceramic production at Bagasra
6. Compare the results with major studied sites like Nageshwar (Krishnan 1986), Nagwada (Shah 2001) and Padri (Bhagat 2000) to appreciate the level of standardization in Harappan ceramic production
7. A proposed model for understanding specialization in archaeological ceramics.

Here, the study is investigating into the concept of specialization which is seldom approached through archaeological ceramics. Hence, the topic has a philosophical stand than a materialistic one that needs to be investigated differently from the traditional way of recording and analysis. Typology has been considered for analysis as it provides a relative chronology of the site and samples and also helps in ordering the ceramics for any type of analysis. Thus typology provides a base for all analysis. In order to understand the technology of manufacture and provenance of the raw material thin section analysis has been opted. Further an ethnographic analysis has also been carried out around the study area in order to get an idea about the local geology, site formation and local traditions existing around the site. After considering the visible and recordable attributes which may reflect the skill and organization of the potters, a morpho-metric analysis was also included in the study. Thus a combination of four major methods has been considered for the analysis.

This study is presented here in six chapters. Chapter I deals with the significance of the research work. It discusses the background of study, its significance and the major objectives and the ideas used in formulating the research problem. Chapter II deals with the methods adopted for study. It includes the nature of the samples, strategies adopted for sampling and justification for selection of the methods for analysis. Here, a combination of four methods have been considered for analysis

and justified the selection through arguments. They are the Typological analysis, Thin-section analysis, Morphometric analysis and an Ethnographic study. Each method has been dealt individually and explains their technical constraints. Chapter III contains a review of the major ceramic studies in Indian sub continent. It may further converse the present status of the Harappan studies. The chapter emphasizes the significance of such studies in developing a better understanding of Harappan culture. It includes a detailed discussion on the Harappan culture in Gujarat with special reference to Bagasra. For the ease of working and better understanding of the site, the study followed the Phase wise division which is based on the differences in architecture and antiquities. Chapter IV exclusively deals with the ceramic analysis and its results mainly in four parts. Part I deals with the typological analysis, that do an ordering of the samples and device a relative chronology for the samples and the site and a base for further analysis. Part II is the thin section analysis where representative samples subjected to a microscopic thin section analysis and their results. Part III is an ethnographic study around the site and the last part deal with a morpho metric analysis of the selected samples from Bagasra. Chapter V contains a discussion of the result of the analysis. It discusses the typological aspects of the ceramics in comparison with the thin section analysis. The chapter will further evaluate the validity of the ethnographic exercise and its application in archaeological samples from Bagasra. An attempt has been made to see the specialization reflected in the archaeological ceramics at Bagasra and tried to define the concept and parameters of specialization. Here, the relationship between specialist, standardization, the context of production and raw material processing techniques and the role of environment in making a quality final product has been discussed. Chapter VI concludes the major results and validity of the model and its applicability in archaeological context. The result of the analysis is compared with the results from sites like Nageshwar, Nagwada and Padri in order to appreciate the level of Specialization/Standardization in Harappan ceramic production.

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Chapter 2 : Methods and Materials

This chapter will deal with the general nature of the samples and methods adopted for analysis. It also includes the need of such methods and the process of how these methods were chosen and the criterias followed throughout the analysis.

2.1 Nature of the sample and the strategies adopted for study

The study is concentrated on the excavated materials (ceramics) from Bagasra. Special care has been given to see that the samples were selected from the actual context, which did not undergo any natural or cultural alterations during the years or by the time of excavation or recording. A detailed surface survey was carried out in and around the mound to understand the geomorphology, extend and nature of the site. After getting an idea about the site by being a part of the exploration and excavation team it was decided to choose two representative trenches for analysis.

Among the two trenches selected for study Er13 and Eo3 defends their selection themselves as Er13 is located on the centre of the archaeological mound. It is the well studied trench that exhibits all four phases of cultural occupation and touches

the natural soil. Moreover it is the index trench of the site, and revealed the cross section of the fortification wall and nature of the cultural materials inside the wall. While trench Eo3 is located outside the fortification wall (southern side) and also reveal all four phases of cultural material that provides an opportunity to understand the nature of the activities happening outside the fortification. Thus, a comparison of both inside and outside the fortification made possible. The undisturbed nature, presence of good number of antiquity and ceramics, all four phases of cultural occupation, presence of different activities and altogether the location made the selection of the trenches logical.

In the analysis proper care was given to maintain the parameters like layer, depth and structural phase division given by the excavators. Materials of both the trenches were analyzed separately and merged to bring out a sequence for Bagasra.

2.2 Typological Analysis

Typology has been used as an important tool for analysis because it is the quickest, easiest and commonly used method for onsite classification. Here, it has been used

1. To order the ceramics at the site and labouratory,

2. To device a general chronology for the site,

3. To establish an inter and intra site relationship of the samples,

4. To understand the probable function and the evolution of the shapes at the site.

The flexibility of typology as per the changing nature and aim of the study make the method inevitable for any ceramic analysis. But the most serious problem with the method is its subjective nature. The basis of any typological study is the "type" which most of the time determined the visible parameters like surface treatment color and feel of the surface. The analyst has the full freedom to define his/her type which is exclusively based on his/her understanding and experience. So same ceramic can be identified or classified by different scholars as different types and form a different typology. There is no standard catalogue or table for recording the

ceramics from the archaeological context. Moreover, the typological studies may seldom deal with the man behind the artifact, the socio-political organization, distribution and the technology of production. In such a context typology can be used effectively to determine a type and can also supplemented by advanced tools like ceramic thin section studies in order to understand the technology of production and provenance of the raw materials.

Ceramic thin section analysis includes the study of ceramic materials, its technology and provenance based on ceramic petrography, which is the description of ceramic materials in hand specimen and in thin section (Whitbread 2001:451). Here, the mineralogy and the internal texture of the fabric of the vessels were considered for analysis. It is a micro-morphological analysis of the 'ceramic paste' or 'clay paste' of pottery. In this optical method, the micro structural features of the fired clay paste are examined followed by its description as it reveled in the pottery thin section. The method entails the mineralogical and textural description of the total micro structure of the ceramics, its characterization into different fabric groups and finally interpretation of these groups in terms of their archaeological implications. This method is successfully employed in addressing cultural issues like ceramic provenance, re construction of ceramic technology, identification of socio cultural phenomena such as import/export, innovation, and technological history of a site/region (Krishnan and Shah 2005). The limitations of ceramic petrology is its inability to resolve minerals below 30 microns, fine grained inclusions and clay minerals and difficulty in mineral identification where it fails to show typical optical properties. It also requires a very clear understanding regarding the geology and the mineralogical wealth of the study area and its adjacent regions. Moreover the method required basic understanding of petrological microscopy.

Here, ethno archaeology has been used as a major tool to understand the existing potting traditions in and around the site, procurement and use of raw materials

and their sources. It provides an understanding of the local geology of the region and may further strengthen the assumptions that structure the thin section studies. It can also be used as step towards typological studies where major types and their probable functions are defined. It was assumed that this study will also throw light on the various aspects of organization of production, distribution and market strategies.

A morpho-metric analysis is also included in the study where visible parameters and attributes were recorded and formulated to address the problems like organization of production and specialization. On the process by taking the measurements like diameters and thickness of rim, thickness of brim and lip, a metric data base has been created to investigate the hidden elements of specialization and standardization of ceramic vessels at the site.

2.2.1 Sampling and initial Categorization

As the first step, after washing, ceramics were documented by giving proper sample numbers. The parameters like layers, depth, ware and cultural phases kept unaltered as a datum line. By considering the workability as well as the nature of the work, the samples were classified in to diagnostic (shape can be re assessed) and undiagnostic. After making a note and quqntification, the undiagnostic shreds were discarded and preceded with the diagnostic ones. The diagnostic shreds were further classified based on shape, color and texture (Fine, Medium, and Coarse). In order to achieve a perfect balance, all the visible parameters were recorded in detail and drawings were prepared. Munsell Color Chart, Moh's scale, and Digital Calipers were used to get an accurate record of color, hardness and thickness of the samples respectively. Diameter chart was used to get the rim diameters, which forms one of the parameters of the morpho metric analysis along with thickness of the vessels.

2.2.2 Working out a Typology

First of all, the samples were classified in to different Wares which is similar to the onsite classification. Here, the surface features, color, slip, external texture, painting and other decorations form the major criteria. The classification resulted in a number of wares like Red Ware, Chocolate Slipped Ware, Gritty Red Ware, Incised Red Ware, Micaceous Red Ware, Burnished Red Ware, Buff Ware, Gray Ware, Red Ware with Buff Slip and Buff Ware with Red Slip. But, a detailed analysis showed that many of the initial classification of wares are the repetition or variations of the same and many of the so called wares can be clubbed and treated together. Thus, by considering both the internal and external features, a revised Ware classification has been devised for the study. The present classification is intended to meet the objectives of the present study and for the Bagasra samples only.

2.3 Ceramic Thin Section Studies

Here, the thin section was subjected to two step analysis. The first or qualitative step involved in getting acquainted with the thin section, observing the mineral inclusions and compiling a list of those that were natural as opposed to those that had been introduced as temper. The second or semi quantitative step consisted of a point count analysis which involved the use of a 1mm counting interval over the entire area of the thin section. 300 points (exclusive of voids) were counted, At each of the points counted during the quantitative analysis the observation made were assigned to one of the following mutually exclusive categories like silt, very fine sand, fine sand, medium sand and coarse sand.

2.3.1 Fabric Characterization Analysis

This method entails the mineralogical and textural description of the total microstructure of the ceramics, its characterization into different fabric groups and finally the interpretation of these groups in terms of their archaeological

implications. Fabric characterization is the most basic exercise in micro structural analysis which uses various descriptive criteria such as the nature, color and birefringence of the matrix, mineralogical composition of the non plastic inclusions and their textural features such as shape (angularity-roundness), sphericity (low-high), size range (silt-very coarse sand), frequency, degree of sorting (unsorted to perfectly sorted), homogeneity, orientation, size distribution character (uni modal-bi modal)and the number and nature of the voids. Based on an assessment of these features, fabric groups are formed of thin sections which share common mineralogical and textural characteristics within a small variation limit.

2.3.2 Textural Analysis

Textural analysis provides the means to quantify and distinguish between the textural and mineralogical differences that could have ensued from modifications of the clay and those that could be a result of raw material procurement (Rice 1987). Here representative samples from the different fabric groups were allowed to go through a quantitative analysis. The method used for this is point counting, where in ceramic thin section is treated as a statistical sample and a fixed number of points (300) are counted. Several methods of counting these points have been suggested, but in all they generate quantitative mineralogical and textural data such as grain matrix ratio, frequency and distribution of different mineral inclusions present, grain size distribution pattern in general as well as related to the different minerals. Quantitative textural analysis is thus a means of fabric comparison that helps to discriminate between ceramic products from the same site and relate it to practices of paste production. Fabric characterization of the pottery sections from the same site often fall in to several fabric groups and sub groups on the basis of some mineralogical factors but mostly on grounds of texture and fabric.

2.3.3 Physical Tests

Physical properties like external hardness and apparent porosity has been calculated in the analysis as it may throw light on the technological aspects of production, nature of the raw material and firing techniques (Rice 1987).

2.3.3.1 External Hardness

Hardness is defined as resistance to penetration, abrasion, scratching and resistance or elasticity (Rice 1987). Here it is devised through a simple standard scratch test using the Moh's Scale where minerals of different hardness from one to nine are present. In this process different grades of hardness of the samples were recorded as less than (<) which ever the hardness it was scratched by. It can be assumed that if a pottery is hard then it would have been made from a low fusing, dense firing clay or it may have been fired in a relatively higher temperature or in an atmosphere that promoted vitrification (Rice 1987). Variations in hardness will reflect differences in firing conditions but uniformity of hardness does not prove an identical firing temperature where paste differs in composition. A hardness of one to three in Moh's Scale can be considered as a poor firing technique while five to six hardness will be a good service ware and hardness of seven may show the high quality or supreme technology of production (Rice 1987).

2.3.3.2 Apparent Porosity

Porosity is one of the basic properties of pottery. It is defined as "the ratio of the volume of pore space in to the total volume of the piece" (Shepard 1957). True porosity means the total pore space, while apparent porosity expresses the relative volume of the open pores. So the volume of pores within a ceramics determines its porosity. The factors influencing porosity are the shape, grading and packing of particles, specific constituents of the clay body mix, surface finishing and firing temperatures (Shepard1957; Rice 1987).

Apparent porosity was calculated after taking the weights of the dry samples, they were allowed to saturate by boiling in distilled water for two hours. The samples were kept suspended in the water while boiling and were allowed to cool down to the room temperature afterwards. So that the air spaces get completely filled as cooling proceed. After mopping the surface, the saturated weights were taken. The residual or apparent porosity was calculated by using the formula.

$$\mathbf{P} = \frac{\boldsymbol{sf - wf}}{\boldsymbol{vf}} \times \mathbf{100}$$

Where

P = Percentage apparent porosity

Sf = Weight of saturated test pieces in gms

Wf =Weight of dry test pieces in gms

Vf = Volume of fired test piece cu.cm

(Shepard 1957:127).

Porosity increases with the amount of temper and increasing fineness of temper. Due to increased contact area porosity decreases in finer clay particles. Porosity is also lower when there is a mixture grading of inclusion size rather than in a uniform grain size as fine grains pack between coarse ones. Surface treatments like application of slip, burnishing and smoothening may also reduce the porosity of a sherd. Here, the process may cause for the compaction and alignment of the finer clay particles on the surfaces and sealing of open pores.

Porosity will be higher in low fired pottery (Shepard 1957). During the process evaporation of water and oxidation of carbonaceous and organic matter creates more pores but when it is fired at a temperature of 800^{o}c the sinitering and shrinkage of mass causes the pore space to be filled in and are either eliminated or from sealed pores (Shepard 1957; Rice 1987). Thus by understanding the porosity one may be able to say about the manufacturing differences of different ceramic classes.

2.3.4 Sampling Strategy

In the present study representative samples for thin section analysis were selected by considering major defining parameters of

1. External Texture (very fine, fine, medium, medium coarse, coarse)

2. Function/major shapes (pot, jar, dish, basins, dish on stand etc.)

3. Architecture (pre fortification, fortification and post fortification)

4. Layer and Depth (Will follow the excavators phase wise classification to get a solid base for comparison and explanation).

The samples selected after typological classification of the pottery from Bagasra were thin sectioned and the microstructural features of the ceramic pastes were examined under a polarizing microscope (Leitz labourlux12 pol D). The micro structural characteristics of the clay paste were studied using compositional and textural criteria. Frequency estimates were obtained optically by comparing with grain size frequency charts (Mathews et.al. 1991: 211-263) and for the mineralogy of the inclusions, standard guide lines were followed (Philips and Grifton 1981, Adams et.al. 1984). Based on the assessment of the above mentioned features, fabric groups and sub groups were determined.

In determining the grain size classes for the mineral inclusions, the accepted particle size range given in Bullock et.al. (1985: 21) was followed. Textural analysis was carried out to assess the intra site variability in ceramic fabrics sharing similar mineral suites. It is thus a means of fabric comparison that helps to discriminate between ceramic products from the same site and relates it with practices of paste production. Grain size distribution and relative abundance of mineral inclusions were the criteria adopted to understand the variability reflected in paste making techniques and source differences. Grain size distribution and relative abundance of nonplastic inclusions were the criteria adopted to

understand the variability reflected in paste making techniques and source differences. Multiple intercept point counting was used to quantify the nonplastic inclusions present in the thin sections. Here, 300 points were counted using a Swift Automatic Point Counter having twelve channels and a stepping stage attachment. Only those minerals, which came under the cross wire was measured. Here, the propotion of the mineral and matrix was measured along with the size of the minerals and other non plastic inclusions. Measurements were taken at X10 and those with grain size less than 20 microns were considered as part of the matrix. The grains were measured along their longest axis. Voids are not considered within the 300 points as it is very difficult to make out whether it is a real void or grain fallout. The relative distribution of grain size and mineral inclusions in the sections thus obtained is considered as the representative of the whole section and thus of the vessel. List of samples selected for thin section studies from the two trenches, ie, Er13 (Table 2.1) and Eo3 (Table 2.2) are listed below. Here as said earlier, the visible external parameters were given importance for the selection and considered as representative of the respective trenches and thus by the site.

Table 2-1 List of Representative Thin Section Samples from Er13

Sample No.	Layer	Depth	Phase	Normal Ware	Revised Ware	Form	External Texture	Hardness
3	17	775cm	I	RW	RW	bowl rim	very fine	<4
12	17	775cm	I	BW	BW	dish on stand base	fine	<3
21	17	775cm	I	BW	RWBS	pot/jar base	fine	<3
24	17	775cm	I	RW	RW	pot/jar rim	Fine	<3
26	17	775cm	I	RW	RW	pot/jar rim	medium coarse	<3
35	16	745cm	I	BW	BW	pot/jar rim	fine	<3
36	16	745cm	I	RW	RW	pot/jar base	very fine	<3
23	15	700cm	I	BW	BW	Undiagnostic	fine	<3
42	15	700cm	I	GRW	RW	dish rim	fine	<3
44	15	700cm	I	RWBS	RWBS	basin rim	very fine	<5
46	15	700cm	I	RW	RW	pot/jar rim	coarse	<3
48	15	700cm	I	BWRS	BW	dish on stand base	very fine	<3
50	15	700cm	I	RWBS	RWBS	pot/jar base	very fine	<3
78	14	625cm	I	RW	RW	pot/jar rim	coarse	<3
90	13	600cm	I	BW	RWBS	pot/jar base	fine	<3
91	13	600cm	I	GRW	RW	pot/jar rim	medium	<3
94	12	570cm	II	RWBS	RWBS	dish rim	fine	<3
106	12	570cm	II	RW	RW	pot/jar rim	coarse	<4
109	12	570cm	II	RW	RW	pot/jar rim	medium	<4

133	12	570cm	II	BW	BW	dish rim	very fine	<3
146	11	540cm	II	BW	BW	pot/jar rim	very fine	<3
150	11	540cm	II	RWBS	RWBS	dish rim	fine	<3
154	11	540cm	II	RWBS	RWBS	basin rim	very fine	<3
162	11	540cm	II	Bichrome	RW	pot/jar rim	very fine	<3
165	11	540cm	II	RW	RW	pot/jar base	medium	<3
181	11	540cm	II	RWBS	RWBS	pot/jar base	very fine	<3
196	10	510cm	II	RW	RW	dish on stand base	very fine	<3
233	9	490cm	II	BW	BW	pot/jar rim	very fine	<3
236	9	240cm	II	RW	RW	dish on stand base	fine	<3
240	9	490cm	II	RWBS	RW	pot/jar base	fine	<3
247	9	490cm	II	GRW	RW	basin rim	medium coarse	<4
284	7	370cm	II	CSW	BW	bowl rim	fine	<4
0.5	7	370cm	III	BW	BW	dish on stand stum	fine	<4
0.6	6	340cm	III	BW	BW	pot rim	very fine	<4
702	6	200cm	III	GW	RW	pot/jar rim	medium coarse	<4
713	6	340cm	III	RWBS	RWBS	dish on stand base	fine	<6
722	6	340cm	III	RW	RW	pot/jar rim	fine	<3
726	6	340cm	III	RW	RW	pot/jar rim	medium	<5
728	6	340cm	III	RWBS	RWBS	pot/jar base	fine	<4
729	6	395cm	III	RWBS	RWBS	pot/jar rim	very fine	<3
735	6	395cm	III	BW	BW	basin rim	fine	<3

739	6	395cm	III	RW	RW	bowl rim	medium	<3
756	6	395cm	III	RW	RW	pot/jar rim	medium coarse	<6
0.7	5	155cm	III	BW	BW	Undiagnostic	fine	<4
351	5	165cm	III	RW	RW	pot/jar rim	very fine	<4
393	5	140cm	III	RW	RW	Bowl rim	fine	<3
411	5	140cm	III	RWBS	RWBS	pot/jar base	very fine	<5
426	5	140cm	III	RW	RW	bowl rim	very fine	<3
0.3	4	110cm	IV	RWBS	RWBS	Undiagnostic	fine	<6
439	4	110cm	IV	BW	BW	basin rim	very fine	<3
442	4	110cm	IV	RW	RW	pot/jar rim	medium	<4
446	4	110cm	IV	RW	RW	bowl rim	very fine	<3
447	4	110cm	IV	RW	RW	basin rim	medium coarse	<3
449	4	110cm	IV	RW	RW	pot/jar rim	medium coarse	<4
453	4	110cm	IV	BW	BW	basin rim	very fine	<3
0.1	3	70cm	IV	RWBS	RWBS	Undiagnostic	fine	<5
0.4	3	70cm	IV	RWBS	RWBS	Undiagnostic	fine	<5
448	3	70cm	IV	RW	RW	pot/jar rim	fine	<3
460	3	70cm	IV	BW	BW	pot/jar rim	very fine	<3
480	3	70cm	IV	RW	RW	bowl base	very fine	<5
639	2	20cm	IV	RW	RW	pot rim	fine	<4
0.2	1	10cm	IV	RWBS	RWBS	Undiagnostic	very fine	<6
673	1	18cm	IV	BW	BW	pot base	fine	<3
678	1	18cm	IV	RW	RW	bowl rim	fine	<3

Table 2-2 List of Representative Thin Section Samples from Eo3

Sample No.	Layer	Depth	Phase	Normal Ware	Revised Ware	Shape	External Texture	Hardness
1002	2	30cm	IV	RW	RW	bowl rim	medium	<3
1009	2	30cm	IV	RW	BW	dish on stand base	very fine	<3
1012	2	30cm	IV	RW	RW	dish rim	fine	<3
1019	2	30cm	IV	RW	RW	pot/jar rim	medium coarse	<4
1020	2	30cm	IV	RW	RW	bowl rim	fine	<3
1029	2	30cm	IV	RW	RW	pot/jar rim	medium	<3
1055	2	30cm	IV	RW	RW	basin rim	medium coarse	<4
1056	2	30cm	IV	RWBS	RWBS	pot/jar rim	very fine	<3
1104	2	40cm	IV	RW	RW	pot/jar rim	coarse	<4
1176	2	40cm	IV	BW	BW	bowl base	fine	<4
1209	2	55cm	IV	GRW	RW	pot/jar rim	coarse	<5
1231	2	70cm	IV	BW	BW	pot/jar rim	very fine	<3
1305	2	60cm	IV	BWRS	BWRS	basin rim	fine	<3
1310	2	60cm	IV	BWRS	BWRS	basin rim	fine	<4
1311	2	60cm	IV	BWRS	BWRS	pot/jar rim	very fine	<4
1334	3	70cm	III	RW	RW	pot/jar rim	fine	<4
1345	3	70cm	III	RW	RW	bowl rim	medium	<3
1402	3	80cm	III	RWBS	RWBS	pot/jar rim	fine	<5
1408	3	80cm	III	RW	RW	pot/jar rim	coarse	<5
1425	3	110cm	III	RWBS	RWBS	basin rim	fine	<5
1436	3	110cm	III	BW	BW	pot/jar rim	fine	<3
1465	3	100 cm	III	RW	RW	pot/jar rim	coarse	<5

1504	4	100cm	III	RW	RW	pot/jar rim	medium coarse	<4
1652	4	140cm	III	GRW	RW	bowl rim	coarse	<6
1711	4	135cm	III	RW	RW	pot/jar rim	medium	<3
1729	5	140cm	III	RW	RW	pot/jar rim	very fine	<3
1771	5	160cm	III	RW	RW	basin rim	coarse	<6
1779	5	160cm	III	RW	RW	pot/jar rim	medium	<5
1780	5	160cm	III	RW	RW	basin rim	fine	<3
1851	5A pit 1	230cm	III	RW	RW	pot/jar rim	coarse	<4
1866	5A pit 1	230cm	III	GRW	RW	pot/jar rim	medium coarse	<4
1981	5A pit 1	225cm	III	BWRS	BWRS	pot/jar rim	fine	<3
2037	7	210cm	III	RWBS	RWBS	basin rim	fine	<3
2045	7	210cm	III	RW	RW	bowl rim	fine	<3
2053	7	210cm	III	RWBS	RWBS	dish rim	fine	<4
2054	7	210cm	III	RW	RW	basin rim	medium	<4
2071	7	210cm	III	RW	RW	bowl rim	medium coarse	<5
2097	8	220cm	I	RW	RW	basin rim	fine	<3
2128	8	225cm	I	RWBS	RWBS	dish on stand base	fine	<3
2138	8	225cm	I	RW	RW	basin rim	medium	<3
2199	8	235cm	I	RWBS	RWBS	pot/jar rim	fine	<3
2225	9	250cm	I	RWBS	RWBS	pot/jar rim	fine	<3
2234	9	250cm	I	BRWS	BWRS	basin rim	fine	<3
2255	9	250cm	I	BW	BW	pot/jar rim	fine	<5
2262	10	260cm	I	GRW	RW	bowl rim	medium coarse	<5

2.4 Ethno Archaeological Study and the Morphometric Analysis

The Ethno archaeological work which was carried out around the site was with an intension to understand or record the existing potting traditions of the region, and to see how different methods of raw material processing and stages of manufacturing are reflected in the microstructure by studying all these stages. Moreover, the study generated a data to evaluate the exiting topics in social organization of production, specialization and the idea of standardization.

For the process five workshops have been surveyed in a radius of five km around the archaeological mound of Gola Dhora (Bagasra). A foot survey was carried out to see the overall location of the workshop and its working nature. The traditional workshops were documented properly after taking coordinates by GPS and photographs. Detailed interviews were conducted at the workshops and drawings were prepared of the major shapes produced. Raw material source area of the different workshops were also traced and documented with the help of GPS. These workshops has been designated as W1 (Bavpur Village, Amarshi Bhai and Godawari Ben), W2 (Jajasar Village, Bikhi Bhai and Godi Ben), W3 (Vavania Village, Mavji bhai and Leela Ben), W4 (Mota Bela Village, Laljibai Devkar), and W5. (Nana Bela Village, Babu Bhai and Rema Ben). The craftsmen were categorized as full time specialists and part timers based on the nature of the production and the amount of time one spends on potting and the total income generated from potting.

Visible parameters like body height dimension of rim (internal and external) and thickness of rim and brim has been considered for the analysis. Digital caliper, geometric scale and metal tape were used for documentation.

Twenty five samples of identical size and shape were collected from each workshop and those were subjected to a morpho-metric analysis. To understand the variability occurred within the workshop, to estimate how much the potter is

specialized and the degree of standardization each workshop retain, it is decided to go with the statistical method of Coefficient of Deviation (Gupta 1969) as it is a measure of dispersion. The method is commonly used to measure the relative variation. It is advisable when someone want to compare the variability of two or more than two series. Here, the series (or group) for which the coefficient of deviation is higher is said to be more variable or conversely less consistent, less uniform, less stable or less homogeneous. On the other hand the series for which coefficient of deviation is less, it is said to be less variable or more consistent, more uniform, more stable or more homogeneous (Gupta 1969: 293). Coefficient of mean deviation is denoted by C.M.D. (Coefficient of Mean Deviation) and is obtained as follows:

$$\text{Coefficient of mean deviation or C.M.D} = \frac{\text{Mean Deviation}}{\text{Mean}}$$

$$\text{Mean Deviation (M.D)} = \frac{\sum X - \bar{X}}{n}$$

Any measure of dispersion can be used in conjunction with any average in computing relative dispersion. Hence, mean deviation as the measure of dispersion and the arithmetic mean as the average are used to avoid the complexities.

Following steps were used:-

1. Five parameters were selected from each workshop and recorded. The selection of the parameters was justified as they are visible and can be decodable in a metric format (diameter of the rim, thickness of the rim, brim and lip, height of the vessel)
2. Devised mean of each parameters
3. Estimated mean deviation
4. Find the percentage of each parameter and clubbed to see the total variation
5. Average percentage of deviation is estimated by dividing the total percentage of variation by number of parameters.

Table 2-3 Variations Reflected on Traditional Workshops Around Bagasra

	Bavpur (N)	Bavpur (D)	Jajasar	Vavania	Mota Bela	Nana Bela
Height of the Vessel	0.033	0.026	0.024	0.038	0.020	0.031
Internal diameter	0.030	0.028	0.023	0.015	0.030	0.037
External diameter	0.040	0.025	0.032	0.016	0.028	0.030
Rim thickness	0.089	0.073	0.097	0.097	0.094	0.061
Brim thickness	0.086	0.051	0.068	0.142	0.100	0.124
Total percentage/Number	27.8/5=5.56%	18.3/5=3.66%	18.4/5=3.68%	31.10/5=6.22%	27.27/5=5.45%	28.55/5=5.71%

N= Normal Production

D=Production under Direction

Similar method was also used to estimate the variation existing on the archaeological ceramics from Bagasra. The one and only difference is the change in the parameters selected for analysis. In the ethno archaeological context the diameter of the rim, height of the vessel and thickness of the rim and brim were considered (Table 2.3). While, in case of archaeological sample, height of the vessels has been dropped (in archaeological context we seldom get full shape of vessels which is essential to retrieve its height) and thickness of the lip is included in the analysis.

Thus a combination of methods like typology, ceramic thin section microscopy, ethno archaeology and a morpho metric analysis has been used to address the ceramics at Bagasra. An attempt has been made to understand the nature of the ceramic production at the site, the mode of specialization existed and the degree of standardization reflected on ceramics. Here, typology provides the necessary platform for analysis, the ceramic thin section analysis by combining textual and mineralogical details throw light on the techniques involved in pottery production or technology of production and provenance of the raw materials. Ethno archaeological studies address the problems of local tradition, stages of manufacture and the socio cultural aspects of ceramic production and distribution. The morpho metric analysis is used to see the inherent degree of uniformity or the degree of specialization.

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Chapter 3 : Ceramic Analysis in Indian Subcontinent and the Harappan Culture

A vast number of studies are available on Indian ceramics by various scholars. These have produced a fairly good idea regarding the tradition, technology and cultural association of the ceramics. It was during the era of Sir John Marshell that pottery studies in Indian subcontinent received due attention. In the beginning, the studies were concentrated mainly on decorated potteries while the plain ones were discarded, considering them as useless. Aurel Stein's (1929) study of Cache Painted Ceramics collected from the North West Frontier province, Baluchistan and Upper Swat and adjacent hill tracts were pioneering works in ceramic studies of Indian sub continent. He studied the decorated potteries properly and tried to compare it with those from other places. His study was based on the pattern of decoration and color treatments. He tried to work out a chronology for understanding its development and cross cultural contacts (c.f. Mishra 2009: 128). He gave importance to the attributes like surface features and decorative motifs. Even though shape/forms of the vessels remained unattended, thickness, height and diameter of the vessels were given attention.

Hargreave's (1929) excavations at Baluchistan brought a scientific outlook in to the study of ceramics. He introduced 'form-based', ceramic classification where rim (short, everted), mouth (narrow, wide, open), and body (straight sided, bulging, squat, elliptical) became parameters for classification. Based on the probable function he divided the vessels in to two groups i.e. domestic and funerary vessels. He devised a new classification based on the color of the slip and other fabric characters where both internal and external fabric was considered. All the visible parameters were recorded and plain and decorated potteries were treated separately after giving proper sample number. The most outstanding contribution of Hargreaves is the introduction of scientific line drawing in to Indian archaeology. He treated the pottery drawing in two halves. The left half shows the cross section of the vessel in bold lines and also portrays the decorations made in the interior of it. At the same time, the right half of the drawing shows the decoration and other exterior features of the vessel. The sizes of the vessels were specified with scales. Full vessels recovered from excavation were photographed with the help of vertical and horizontal scales as well (c.f. Mishra 2009: 128).

A detailed study of the ceramics from Baluchistan came out with the publication of Sir John Marshell's Mohenjodaro and the Indus Civilization in 1931. He classified the ceramic assemblage in to three major wares namely the Red and Black Ware, Hybrid Ware, and Buff Ware. These wares were further subdivided in to different regional wares such as Black on Red Ware (the true Indus variety), Baluchi Ware (Coarse fabric) and Surjungal Ware. The Gray Ware was divided in to Buff Baluchi Ware, Gray Ware, Shahi tump Ware and Nal ware (Marshell 1931: 96). Piggott and Donald Mc Crown (Piggott 1946: 13, Gordon 1954-55: 176) studied the potteries of Indo Iranian boarder lands and put forward the theory of Red and Buff Ware areas which has a contrasting distribution with Buff Ware in south and Red Ware in north. He subdivided the southern zone in to three categories viz, The Quetta Culture, Amri-Nal Culture, and Kulli Culture. While the Northern Red Ware culture zone is renamed as Zhob Culture.

The systematic explorations carried out at Sind region by N.G. Majumdar and excavations of the sites like Amri and Lohunjodaro revealed an early phase of Indus Valley Civilization (Majumdar1934, Deva and Mc. Crown 1949: 12-30). Here, the ceramics were collected and studied from its actual context and followed the stratigraphic order for analysis. He made a comparative study of the ceramics from the early and late levels based on their clay/fabric types, color and designs. He described the technique, type and decoration of Amri pottery in detail and introduced the terms like 'Poly chrome effect' and 'paste character'. His classification was based on the concept of ware which is rested on the attributes like colour of paintings, shape of the vessel and thickness of the wall. Height and diameter of the vessels were also specified in his report, though not directly contributing to the concept of Ware.

The study of M.S Vats (1940) on Harappan ceramics noticed a change in the outlook or vision in understanding divergent potential of the artifact in explaining the cultural past. He analyzed the ceramics carefully and categorized them based on its surface and textural features. An attempt has been made to interpret the painted motifs on the burial potteries in connection with the mythological characters. He thought birds like peacock has some connection with the dead and is the carriers of the spirit to heaven and used the terms like 'abode of bliss'. He considered the trident-crested animals (goat, bulls and hound) as emblems of divinity connected with the 'cult of dead' (Vats 1940:207-208). After, considering the importance of the decorative motifs on ceramics, he used the phrases like "Painted Pottery Culture" or "Painted pottery level". A major shift on the process of analysis can be seen in his works. Serious attempts were made to understand the workmanship or brush work reflected on the vessels. The decorative motifs were studied carefully in connection with the function of the vessels such as household pots and burial pots. The doctoral thesis of R. F .S. Star (1941) entitled "Indus Valley Painted Pottery" concentrated on the decorative motifs of Indus ceramics

and derived a conclusion that these paintings have a similarity to near eastern proto types.

Sir Motimer Wheeler, has contributed to a great extent to the study of archaeological ceramics (Wheeler 1924). He followed the system of analyzing the ceramics on its stratigraphic context. In his macroscopic method of analysis Ware or Type was devised based on the surface color, slip and brightness of the shreds. The study of the fabric characters, manufacturing techniques and surface treatments were carried out. Type, size and shape of the vessels, decorative motifs etc were taken up with great importance. He introduced the system of a 'scientific pottery yard' where ceramics were arranged in its sequential order. He followed the scientific method of pottery drawing. The type and sub type wise description of drawing was provided with proper scale in centimeters and in inches. He also gave emphasis to the microscopic study of ceramics.

Post independence period saw a new energy among the archaeologists and scholars who engaged in archaeological researches. Serious attempts were made on explorations and excavations which resulted a drastic change in the study of ceramics as well. This period witnessed the use of more scientific method and theories in the study of ceramics. Processual and Post Processual ideas further accelerated the researches in ceramics. Ethno archaeological study of ceramics gained momentum during this period and became an integral part of the ceramic study. Among the works Saraswati (1979), Saraswati and Behura (1966) deserve special mention. Here, ethnographic data were used for understanding the manufacturing technology, Spatio-temporal variations, functions and socio-economic and religious values of ceramics. Works of Ansari (1964), Gupta (1969), Miller (1985), Karmar (1991), Karr et.al. (1994), Choksi (1994) are of this category.
Among the studies followed B.B Lal's attempt to understand the cultural history and archaeological background of the great epics of Ramayana and Mahabharata resulted in to the identification of two new cultures, OCP (Ochre Colored Pottery)

and PGW (Painted Gray Ware). He employed the method of macroscopic observation and tried to bring parallel from ethnographic studies (Lal 1971). The classification of Kalibangan ceramics by J.S Nigam in to different fabric types based on visible textural features provided a platform for the study of early and mature Harappan ceramics in India (Lal & Thapar 1967). Here, quality of clay paste, surface finishing and decorations were given importance. S. R. Rao's (1963, 1969, 1985) excavations at Lothal and Rangpur showed a new path to the studies of ceramics in India. He divided the ceramic assemblages in to Harappan Wares, Associated Wares and Wares of Foreign Origin. The vessel shapes were studied in detail and minute details were also recorded. Variants have been identified with modification. Decorative pattern were also studied corresponding to its phase. His most important contribution is the excavation of sites like Rangpur and Lothal and the identification of the degenerated or Late Phase of the Harappan Culture.

J. P Joshi (1972) on the other hand believed more on fabric characters for classification. He gave importance to the texture of the clay, temper, firing technique, surface color and striation marks. Chemical, thermal and spectroscopic analysis carried out on the Bhagvanpur samples shows his aptitude towards scientific analysis of ceramics. Manchanda (1972) studied the ceramics from Harappa in a meticulous way. She studied the vessels carefully and identified its variants on the basis of size, shape and technique of manufacture. Based on the typological study she tried to work out the phenomenal like influence, contact and diffusion in order to explain the spread of culture. She produced a chronological pattern for ordering the ceramics. She made a comparison of painted motifs from a number of sites belonging to Pre-Harappan and Harppan phases and came to a conclusion that "The ceramic evidence in its totality does not point to the Harappan culture being the progeny of the so called Pre-Harappan culture of India and much less the progenitor of the Post-Harappan Chalcolithic Culture of India" (Manchanda 1972:380). Dales and Kenoyer (1986) studied the Mohenjodaro pottery in detail and brought out a scientific catalogue for the recording and study

of Harappan ceramics. Type and sub types were given special attention and attributes like rim, body and base were dealt in detail and tried to figure out the evolution of the shapes. They divided the shapes based on the function and size. Special care has been given to see that all the shapes of varying degree of changes were recorded and defined properly.

As far as the scientific analysis of Harappan ceramics is concerned the chemical analysis carried out by Hamid on the knobbed wares of Mohenjodarao, Sana Ullah from Harappan and microscopic observation of Reserved Slip Ware by Plenderleith (Marshell 1931: 692), Hegde (PGW, BRW and NBPW) are note worthy. B. B. Lal scientifically analyzed the pottery from Lothal and Rangpur to understand the manufacturing technology and the nature of the materials employed in their fabrication (Rao 1963, 1985). His great contribution is the study of O. C. P (Lal19 71-71: 58) where he disproved the hypothetical presumption like (ill firing, water logging and great deluge) as the reasons for the colour of Red Ware. Through his analysis he established that the salinity of sub soil water as the reasons for the weathering of the surface of O. C. P.

The chemical analysis of ceramics carried out by G. G Majumdar on the technology and production of B. R. W (Black and Red Ware) and N. B. P. W is note worthy. The X-ray diffraction studies of Gogte gave an impetus to the study of fabric characterization of ceramics. He has been able to identify successfully the cultural contacts through the analysis of imported potteries and their sources in Indian context (Gogte 1993, 1995, 1996).

Other works that deserves special mention are Hegde et.al. (1986). It deals with the ancient pottery kilns and the methods of firing. It also proposes inverted firing as the technique of Black and Red Ware. The chemical and petrographic studies undertaken Hegde in Harappan Ceramics at Gujarat deals with the manufacturing and Production. The Ceramics from sites like Vagad, Ratanpura and Nageshwar

(Krishnan and Hegde 1988). Herman and Krishnan (1994) studied the Micaceous Ceramics from Bhal region and defined its characteristic types and established the existence of a reginal chalcolithic phase in Gujarat during the Mature Harappan period. Krishnan's (1992) chemical analysis of the pigements in Harappan pottery is the first of that nature on Indian ceramic studies. Krishnan and Veena Rao (1994) carried out ethnographic studies on traditional potters' workshops around Baroda and North Gujarat (Murzzapur) in order to understand the clay paste preparation techniques through grain size. Microstructural analysis is considered as the beginning of a new trend to standardize microstructure of ceramics. The work has produced a model for understanding the clay paste preparation and an insight towards the technology of manufacture. Herman and Krishnan (1995), Krishnan and Cunningham (2002) deals with the petrographic aspects of ceramics. Krishnan et.al.'s (2005) micro structural study of the Glazed Reserved Slip Ware is an example of combining chemical and petro graphic study in addressing the problem of surface treatments and compositional studies. The study brought out the evidence of sintering and revealed the high quality of the workmanship of the Harappans in producing a deluxe ware. Shah (2001) dealt with the scientific analysis of Black and Red Ware from three major sites, where fabric characterization has been given importance. Compositional and technological aspects of the Black and Red Ware have been investigated along with its provenance.

Lot of other studies were also coming in the last few years in the form of M.A and Ph.D dissertations which needs to be nurtured for the future of ceramic studies. Mishra (2001), Bhagat (2001) are of that nature.

3.1 Indus Civilization: An Over View

The excavation at Mohenjo-Daro in Sind and Harappa in Punjab by R.D Banerjee and Dayaram Sahini under the directorship of John Marshell, brought the discovery of a new civilization on 20thsep 1924. This resulted in to extensive

excavations and explorations in Sindh, Baluchistan, Punjab and North Western Frontiers during 1920's and 1930's. Further excavations by M. S Vats, Dikshit and Mackey from 1926 to 1937 revealed a citadel and a general lay out of the city at Mohenjodaro. There was parallel research at Harappa from 1920 to 1934. Aurel Stein explored the North West frontier in 1927 and Southern Baluchistan in 1927-28. Sind region was explored and excavated by Majumdar between 1927 and 1931 (Possehl 2002:1). E. J Ross investigated Rana Ghundai in Northern Baluchistan from 1935 to 40 (Ross 1946).

Rangpur one of the major Harappan settlements in Gujarat was excavated in 1934-35 by M. S. Vats and re-excavated by S.R. Rao in 1953-54, revealed a declining phase of Harappan culture and its gradual transformation in to a Late Harappan /Post Harappan culture, which was a shock to those who believed that the civilization had a sudden abrupt end. (Rao 2006: 3). Further explorations conducted at other parts of Gujarat added a number of sites to the list. The excavation of Lothal, a port town on the Gulf of Khambath was a great achievement for Indian archaeology. The combined efforts of ASI, State Archaeology Departments, Universities and other foreign and national agencies altered the picture after partition. Now there are more than 1500 sites of Indus civilization that falls within the Indian territory (Possehl 2002). The explorations conducted on the Cholistan deserts by the Pakistani archaeologists, also added nearly 400 sites, altogether enhanced our understanding of the civilization.

The term Indus civilization is applied to all the phases of the Harappan culture named after the type site Harappa, excavated in 1920. Even though the term Indus Civilization limits the geographical extent of the civilization to the Indus Valley; it further extends to Saraswati and Yamuna valley in the east, Baluchistan in the west to the whole of Gujarat in the south and up to Afghanistan in the north, covering an area of 1.5 million sq. km (Rao 2006: 3). Various scholars proposed

different terminologies like Indus Saraswati Civilization, Sub Indus, Harappan Civilization etc to denote the Harappan way of life.

Based on the physical features, the whole region can be divided in to four provinces (Rao 2006). They are;

1. The Western Province: include Baluchistan, Afganistan and hilly areas of Iran where Khyber and Bolan passes providing access to Afganistan
2. The Central Province: include the regions from Balakot to Harappa, specifically the flood plains of River Indus, Ravi and Satluj.
3. The Eastern Province: include Ghaggar-Hakra (Sarasvati), Chautang (Drishadvati) and Upper Yamuna basins comprising Punjab (India) Hariyana, Rajastan and western Utter Pradesh.
4. Southern Province: Include the regions of Kachchh, Saurashtra, North and Central Gujarat (Anarta) and South Gujarat (lata) up to Kim estuary.

Archaeologists have a general agreement regarding the beginning of agriculture / settled life as the first step towards urbanization. The Urbanization of the great Indus Valley can also be traced back to the early village farming communities of Mehrgarh.

Recent research has shown that the first agricultural community on the Indian subcontinent dates back to as early as 7000 BC. Evidence for cultivated wheat and barley as well as domestic sheep goats and humped cattle have been discovered at the site of Mehrgarh at the foot of the Baluchistan hills from the earliest period of the site (Mehrgarh I). Farming which started at Mehrgarh, gradually expanded to the entire area around the Baluchistan hills. Many farming settlements and cultures developed in small river valleys in the hilly area and around oasis. Painted pottery and clay figurines representing people and animals provide vivid expressions of those cultures (c.f. Rao 2006). Later at the beginning of the third millennium BC the alluvial plain of the Indus River system was developed and this resulted in the increase in agricultural production (Rao 2006). With this expanded

production capability as the background, large settlements with city walls such as Kot- Diji, Harappa and Kalibangan developed. As the people of these sites shared many cultural traits such as pottery, stone tools, metal tools, bricks, uniformity emerged and is altogether called the Indus Civilization.

The process that resulted in the development of the Indus civilization have not yet been clear, but we can see many factors such as technologies and religion which link the early Indus culture to the later civilizations. Therefore it can be said that the Indus civilization succeeded and developed from the earlier cultures, organizing and integrating them. In that sense the Indus Civilization is the great culmination of the agricultural society that continued for so many years after its introduction at Mehrgarh.

As far as the Indus Valley area is concerned, the Integration Era (Shaffer 1992) lasted for nearly 500 years followed by a change, Localization Era. Although much has been written about the various facets of this civilization, researchers who want to deal with the Indus valley Civilization face quite a number of problems regarding its terminologies and chronology.

3.1.1 Terms and Terminologies

The spread, variety and vast number of studies undertaken have generated a large number of terms and terminologies, which confuses the reader. Among the terminologies Indo –Sumerian Civilization, Indus Civilization, Harappan Culture, Indus Valley Civilization, Proto Indian Culture, Indus Saraswati Civilization, Indus Age are the major ones used to denote the this culture. The term Indo-Sumerian Civilization was used in the preliminary excavation reports at Harappa and Mohenjo-Daro prior to 1926. The reason may be the similarities that the remains shared with Sumeria and the belief that the contacts with Sumerians might have benefited the Indus Civilization. In 1926 Marshal dropped the term in favor of Indus Civilization (Possehl 2002: 12). Further, as the elements of the culture were widely distributed at various places on the Indus and its tributaries

the term Indus valley Civilization came to be in use. Mackay employed the term Harappan Culture for the first time after the site of Harappa. Modern scholars prefer to call this civilization as “Harappan Culture”.

The recent satellite image study of the lost river bed of Saraswati (a sacred river of Rigveda) and the identification and discovery of more sites on the banks and tributaries of Ghaggar led some scholars to rename it as the Indus Saraswati Civilization (Gupta 1996). The major Harappan sites like Rakhigarhi, Banavali and Kalibangan are situated on the banks of the dried bed of river Saraswati.

While dealing with the evolutionary stages of culture more terms; Pre Urban, Urban, Post urban, Pre Harappan, Early Harappan, Mature Harappan, Late Harappan and Post Harappan etc are used and these need an explanation. The following table (Table 3.1) shows the major terminologies used by various scholars to distinguish different stages Harappan Culture.

Table 3-1 Currently Used Periodizations of Harappan Culture

Possehl (1984)	Mughal (1971, 1990)	Sankalia (1974)
Pre Urban Harappan	Early Harappan (A)	Pre Harappan
Pre Urban Harappan	Early(Urban) Harappan (B)	Pre Harappan
Urban Harappan	Mature Harappan	Harappan
Post Urban Harappan	Late Harappan	Late/Post Harappan
Post Urban Harappan	Post Harappan	Post Harappan

Among the various aspects, origin and chronology of the civilization deserve special mention as it is debated over years and even till today are not able to produce a generally acceptable explanation to the same. More and more studies produce detailed or even minute observations that resulted in different periodizations. A vast literature is available on the cultural process of Indus Civilization and scholars vary their observations in terminologies and chronology of the civilization (Table 3.2). Here one can observe that the developmental stage

of Indus Urbanization is approached differently by different scholars. Shaffer tried to see the development of culture by putting them in to four stages like Early Food Producing Era, Regionalization, Integration and Localization Eras. Possehl categorized them in to Seven Stages while Fairservis put it in five major stages.

Table 3-2 Cultural/Chronological Schemes of Indus Civilization Possehl (1999), Shaffer (1992) and Fairservis Jr (1970)

Shaffer (1992)	Possehl (1999)	Fairservis Jr (1970,)
The Indus valley Tradition	Stage I	
	Kili Ghul Muhammad Phase	
Early food producing Era	7000-5000BC	Stage I
6000-5000BC	Burj barket–Marked Phase	Pastoralism with
Mehrgarh Phase	5000-4300BC	limitted Cultivation
	Stage II	6000-3300BC
Gap no sites discovered	Togau Phase	
	4300-3800BC	
	Kechi Beg/Hakra Ware Phase	
	3800-3200BC	
Regionalization Era	Stage III	Stage II
4000-3000BC	Amri-Nal Phase	Developed
Balakot Phase	3200-2600BC	cultivation and
Amri Phase	KotDiji Phase	pastoralism:
Hakra Phase	3200-2600BC	Beginning of
Kot diji Phase	Sothi- Siswal Phase	regionalism
Nal Phase	3200-2600BC	3300-2500 BC
	Damb Sadaat Phase	
	3200-2600BC	
	Stage IV	
	Early Harappan –Mature	Stage III
	Harappan Transition	Fully developed
Integration Era	2600-2500BC	sedentary village
2500-2000BC	Stage V	life: regionalization
Harappan Phase	Sindhi Harappan Phase	but integrational
	2500-1900BC	context
	Kulli Harappan Phase	2500-2300 to2200
	2500-1900BC	B.C.

    Localization Era 2100-1300BC Punjab Phase Jhukar Phase Rangpur Phase	Sorath Harappan Phase 2500-1900BC Punjabi Harappan Phase 2500-1900BC Eastern Harappan Phase 2500-1900BC Quetta Phase 2500-1900BC Late KotDiji Phase 2500-2900BC Stage VI Jhukar Phase 1900-1700BC Early Pirak Phase 1800-1000BC Late Sorath Harappan Phase 1900-1600BC Lustrous Red Ware Phase 1600-1300BC Cemetry H Phase 1900-1500BC Swat Valley Period IV 1650-1300BC Late Harappan Phase in Haryana and western UP 1900-1300BC Late Harappan–PGW overlap Phase 1000-1100BC Early Gandhara Grave Culture Phase 1700-1000BC Stage VII Late Pirak Phase 1000-700BC Painted Gray Ware Phase 1100-500BC Late Gandharan Grave Culture Phase 1000-600BC	 Stage IV Period of Urbanization 2300-1700 B.C Stage V Economic decline and the gradual abandment of the Indo- Iranian boarder lands 1700-1200to800 B.c.

Shaffer (1992: 442) benefitted greatly from the work of Willey and Philip (1958) and tried to explain the cultural process for the north western sub continent. He discusses about three cultural traditions Viz, the Indus Valley tradition, the Baluchistan Tradition and the Helmand Tradition. Here, a tradition is referred as "a persistent configuration of basic technologies and cultural systems within the context of temporal and geographic continuity". A tradition can be further divisible in to Eras or Phases which shows general cultural characters. They are discussed as having no fixed boundaries and space and one may coexist contemporaneously with in the tradition. The Eras are said to be a sequential series proceeding in the same order and connoting changes in general cultural organization with in the areal tradition. They are not necessarily contemporary with the Eras of other tradition. Here four main Eras are identified in a tradition namely, Early Food Producing (an economy based on food production and absence of ceramics), Regionalization (distinct ceramic style and interaction of dispersed social groups), Integration (homogeneity in material culture and intense interaction between social groups), Localization (generalized similarity in artifact style and interaction network, indicating continued but altered). It is possible to have more than one phase in an Era. It represents "an archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilization, specially limited to the order of magnitude of a locality or region and chronologically limited to a relatively brief interval of time" (c.f. Shaffer 1992).

The Indus valley tradition is dated from pre-6000BC to approximately 1500BC. Mehrgarh is the one and only excavated site belonging to the early food producing era. At Mehrgarh, Period IA is purely aceramic in nature and that shows the beginning of habitation. The phase is marked with a food producing economy, sedentary village with mud brick architecture, and the development of shell lapidary and shell working crafts.

The Regionalization Era consists of four major phases namely, Balakot Phase, Amri Phase, Hakra Phase and Kot Diji Phase. The phases are dated approximately 4000-3500 B.C., leaving a gap of 200 yrs between Balakot and Mehrgarh Phase. This Era ends at ca. 2500 B.C with the development of the Harappan phase in the Integration Era. However, some sub regions or social groups of this era are also found to be contemporary with the Harappan groups. The Integration Era, noted for its cultural homogeneity consist of only one phase, i.e., the Harappan Phase; that have the most intensive distribution in the central and northern Indus valley and is affected by the entire Indus valley and its bordering regions in varying degrees. It is during this period an urban civilization was flourished on the entire Indus domain. The Localization Era consists of different phases and has an approximate date of ca. 2100-1300BC. A general degradation is observable in the material and other aspects of culture. The major phases of the Localization Era consist of the Punjab Phase (Cemetery H), the Jhukar Phase in Sind (major sites: - Amri, Chanhudaro, Jhukar), and Rangpur Phase in Gujarat (Rangpur IIB and Lothal B).

As far as the Baluchistan tradition is concerned, some what a linear development is observable. The area representing this tradition include, Baluchistan area in western Pakistan and south eastern Iran. A date suggested for this tradition is 6000-1300 B.C. The Early food producing era is best noted at Mehrgarh IA or the Mehrgarh Phase of the Indus Valley. The Regionalization Era incorporates all archaeological phenomena subsequent to the Mehrgarh phase until the early Iron Age or ca. post 6000-1300 B.C. The major phases that comes under this categorization are the Kachi Phase, Kili Gul Muhamod Phase, Kechi Beg Phase, Damsadaat Phase, Nal Phase, Kulli Phase, Periano Phase, Bampur and Pirak Phases.

Faiservis, Jr. (1979) suggests five major stages of an independent development of the Harappan Civilization. In stage I people having domesticated cattle, sheep and

goats and practice of limited agriculture were settled in parts of the indo Iranian borderlands. They made handmade pottery, bone needles and stone-tools. The stage is best represented in southern Afghanistan and at Quetta, Loralai and Zhob in northern Baluchistan and proposes a date of 3300BC.

In the second stage, advancement in agriculture is observable as the dwellings were larger and more substantial. The ceramics include both handmade and wheel made and the finer vessels retain the graffiti marks. Mud bricks were in use for construction. The cultural assemblage has a wide distribution from southern Afghanistan to Central Baluchistan and has a date of circa 3300BC. However, in its later phase distinct regionalization occurred, superficially represented in the pottery, decorated in poly chrome or with concentric designs of the so called Nal type prevalent in the central Baluchistan and extending as far south of Kolwa and Las Bela in Sind. The fine line kechi beg wares of the Quetta Valley and their equivalents in Loralai and Zhob represent another regionalization.

The stage III represents sedentary village settlements. Here the villages achieved their maximum size and the maximum land was used for cultivation (Shaffer 1992). A wide variety of copper and bronze pins knives and axes were in use. Artifacts like seals, elabourate system of potters marks, alabaster vessels, and pottery forms were recovered. The decorations mainly include pipal leaves, humped bulls, cobras, birds and fishes. The stage can be dated from 2500BC to ca. 2300 to 2200BC. It is widely represented in the boarder lands of Southern Afghanistan at Quetta, Zhob, Kolwa, Nal, and Wadh in Baluchistan, Darko and Las Bela in South Western Sind and Kachhi in Bhawalpur and in Bikaner.

Stage IV is marked with its distinctive features of Urbanization. The characteristic features of this period are a monumental building built on the highest part of a mound or other elevation natural or artificial. In the Indus river valley the urban developments at Mohenjo-Daro, Judeirjo-daro, Chanhu-daro, and later at Harappa belong to the same developmental line as that found in eastern Baluchistan and

Southern Afghanistan. A date of 2300 to 1700 BC can be assignable to the particular phase.

Stage V is the period of economic decline and the general abandonment of the Indo Iranian Boarder lands. A large number of villages were abandoned. Only the large village sites continued to be inhabited but at the same time reflect a decline in the quality of craftman ship and degradation of building practices. In the Indus valley, only the large sites continued to be occupied in an increasingly deteriorating situation. In the latter part of the period, new cultures arrived on the scene, but as a whole only a few of these people came in to conflict with an established generation of older occupants. This period can be dated after circa1700BC and probably lasted late as 1200BC.

A similar sort of development for the Indus Urbanization was also observed by Possehl. The cultural/chronological scheme proposed by Possehl (1999) tried to see the origin, development and de urbanization of the great civilization in to different stages (Stage I-VII) and phases which are explained as a tradition inter connected and continuing in to the last phase of the culture. In his classification, Stage I show the beginning of a village farming community and pastoral camps while stage II deals with a developed phase of village farming and pastoral activities. A continuation of the tradition can be observed at stage three which consist of four major phases namely, Amri-Nal Phase, Kotdiji phase, Sothi-Siswal phase and Damsadaat phase. Stage IV is proposed as a short period of 100-200 yrs of transition from Early Harappan to the Mature Harappan. Stage V deals with the Mature Phase of Harappan occupation, consist of five major phases. They are the Sindhi, Kuli, Sorath, Punjabi and Eastern Harappan. A date of 2500-1900 BC is assigned to the particular phase. The Quetta Phase and Late Kot Diji Phase were also thought to be contemporaneous with the Mature Harappan. Stage VI deals with the post Harappan Phase, a period stretching from 1900-1000BC. The major phases of this period are the Jhukar Phase, Early Pirak Phase, Late Sorath

Harappan Phase, Lustrous Red Ware Phase, Cemetry H Phase, Swat valley Period IV, Late Harappan Phase in Haryana and western Utter Pradesh. While stage VII deals with the Early Iron Age of Northern India and Pakistan, deals with the phases of Late Pirak, PGW and Late Gandharan Grave. A period from 1000-600 BC is assigned to the particular phase.

Possehl (1991) in his linear cultural sequence (stage I-VII) noted the early stages of village farming at the sites of Kili Gul Muhammod and at Mehrgarh. The earliest phases were termed as the Kili Gul Muhammod Phase and the Burj Basket Marked Phase, the evidence of pottery is recorded at the site of Mehrgarh II. Here the pottery is handmade and consists of simple shapes. They are soft and chatt-tempered. During this phase the architectural features remained simple and pastoralism and domestication of animals was plasticized along with agriculture. A developed stage of village farming is observable in the Togau Phase at Mehrgarh III, has evidence of mass production of ceramics with more or less standardized shapes. The pottery is wheel made and the major ware consists of Black Painted Red Wares. The major shape includes bowls with a knife edged rim. The Kechi Beg Phase, Period IV and V at Mehrgarh are noted for the change in the subsistence from wheat to barley and metallurgy. A Poly Chrome Ware, fine Buff ceramics are noted in the phase. The Hakra Phase noted for the beginning of regionalism. The Hakra Ware consists of an entire assemblage of different pottery types. A black slipped Red Ware consist of wide shouldered vessels. It can be comparable with the ceramics reported from the sites of Kot-Diji, Sheri khan Tarakai.

Stage III or the Early Harappan Phase proposed by Possehl consist of four regional phases namely the Amri-Nal, Kot-Diji, Damsadaat, and Sothi Siswal. These phases can be equated with the Regionalization Era of Shaffer (1992). A pronounced geographical extension can be observable during this phase in to Potwar Plateau, Indian Punjab, Hariyana, northern Rajastan, western Utter Pradesh and Gujarat.

The Amri- Nal Phase is named and defined through the findings from two representative sites. The Amri material occurs mainly in Baluchistan while the Nal material is found in both Baluchistan and Sind. They are mostly fine wares, some times slipped and often painted in black. In the beginning the designs are exclusively geometric and later developed in to curvilinear motifs. The shapes include bowls, jars and tall vases with simple featureless rims. The Nal ceramics are also fine wares with buff to pink in colour. The characteristic shapes include straight sided bowls with simple knife edged rims. Poly chrome infilling of the designs includes the use of red, pink, blue and yellow. White paintings over a black slip are also known. The Kot- Dijian archaeological assemblage is distinct from Amri-Nal with some over lap in vessel forms and decorative motifs. The pots were also made in red or buff in color. The Damb Sadaat Phase is contemporary to Kot Diji and Amri Nal. This is a small and more localized cultural phase centered on the Quetta Valley. The pottery was often slipped. In addition to the local ceramic types, short necked globular Jars of Kot- Dijian type and Faiz Mohammed Grey Ware were also found (Possehl 1991).

The Sothi-Siswal Phase cultural sites have a concentration in the dried up belt of river Saraswati and on its main tributary Drishadwati or Chautang. Most of these sites fall in the present day political divisions of Punjab and Haryana. The Sothi-Siswal Phase ceramics are mainly grouped in to six fabrics, named as fabric A to F. Archaeological evidence suggest that these four complexes give rise to the integration era , which has a time bracket of 2500-2000BC.

The excavations at Amri , Ghazi Shah, Nausharo,Kunal, Banawali and Dholavira noticed a transition phase from early to mature Harappan. This period can be dated between 2600-2500 B.C. It is relatively a short period of time, witnessed the transformation of pre urban elements to the Urban.

3.1.2 The Mature Harappan/Urban Phase

Mature Harappan Culture is a term applied to all urban and rural settlements adhere to town planning, civic amenities, prosperous economic conditions as reflected by trade, industry and use of seals (Rao 2006: 7) There are five phases thought to have been contemporaneous with each other (Possehl 1999, 2002). They are the Sindhi, Sorath, Kuli, Punjabi and Eastern Harappan Phase. It has a date stretching from 2500-1900 B.C. This phase is noted for its material and cultural homogeneity. It can be equated with the integration Era of Shaffer (1992) and stage IV of Fairservis, Jr. (1970).

The major criteria which used to describe/define Mature Harappan are the thick red Harappan pottery; black on red ware with naturalistic designs, large bricks with a ratio of 4:2:1, long chert blades, cubical weights, stamp seals with scripts and usually animal motifs, triangular and round terracotta cakes, clay carts and wheel models, steatite disc beads and micro beads, long barrel shaped carnelian beads, copper or bronze razors, barbed fishhooks, and rectangular flat axes. Shell bangles with chevron marks, inlay pieces and ladles can also be included in the list. All the items do not occur all the time in every excavated Mature Harappan site. At some sites the brick architecture replaced with stone one (Rojdi). Mature Harappan phase is also noted for a well fired red ware painted with black designs of vegetal and geometric patterns. The major shapes include dish on stand, S shaped jars, straight sided beakers, pointed goblets, perforated jars etc. (Joshi 1972). Red ware was occasionally chocolate slipped, but was often painted in crimson, black and rarely in white (Rao 1985). Buff slipped ware and Buff Ware; painted in black or chocolate are also typical of this period. In Gujarat, Micaceous Red Ware, Prabhas Ware, Black and Red Ware, Coarse Gray Ware, Cream slipped Bichrome Ware, Red slipped Polychrome Ware, and Reserve Slip Ware are also been found in association with Mature Harappan Phase.

3.1.3 Late Harappan/Post Urban Phase

The term late literally mean the end or the diffusion of a civilization at climax period. The late Harappan Culture could be identified with the archaeological assemblage which follow the cultural continuity of the Mature Harappan and its associated miscellany (Lal 1997:57).The changing phase of the Harappan culture in Saurashtra and further south is denoted by Wheeler proposing a terminology of "Sourashtrian Indus" (Wheeler 1966: 87). He also called it provincial or late varieties of Indus Civilization, with a caution on the use of the term Indus. Gosh in his survey categorized the culture represented at Rangpur IIB (possibly also IIC) and allied sites in Gujarat and sites in Punjab and Haryana and western Utterpradesh as late Harappan (Lal 1997: 55). Possehl describes it in this way as compared to Mature Harappan, a less organized less differentiated, and less specialized than the urban phase and proposed a new terminology for this kind of changes as Post Urban Harappan in the context of Gujarat (Possehl 1980: 20). Dikshit views this deduction or transformation in the internal interaction of the society as a result of the economic decline (Lal 1997: 56).

The most significant factor of the Late Harappan period is the homogeneity of the Harappan culture which existed throughout its Mature Phase was broken and its diversity became evident in the form of regional cultures (pottery types). Late Harappan Culture can be explained as a cultural phase where the evolutionary stages of the Indus Civilization took place.

Based on the present day understanding and evidences we can propose a tentative chronology for the Indus Civilization. The following chart (Table 3.3) shows some available c14 dates from the excavated sites belongs to different phases of Harappan Culture.

Table 3.3 Chronological Bracket for Harappan Culture Based on 14 C Dates after Ajithprasad 2002.

	Name of the Sites & Period	C14 Dates (B.C)	Calibrated Date(B.C)
Early Harappan Phase (2900-3300 B.C)	Harappa	2725 +_ 145	3338,3213
		2725 +_ 90	
	Mohenjo-Daro	-------	---------
	Mehergarh IV	2365 +145	2877,2708
	Rehman Dheri II	2705 +115	3226,3147
	Jodhpura(Ganeswar)	2540 +_ 165	3018, 2926
	Kalibangan I	2370 +120	2879, 2709
	Kunal I	--------	3000
	Padri	3680-3049	-----------
	Surkotada IA	2315+135	2865,2668
	Prabhas I	2911-2892	----------
	Loteshwar	3898-2925	---------
	Harappa	2470+70	2913
Mature Harappan Phase (2900-1900 B.C)	Mohenjo-Daro	2155+65	2556
	(Middle/Late)		2493
	Shortugai I	2245+100	2651,2610
	Lothal III B	2080+135	2461
	Lothal IA		2800
	Prabhas II	2299-1933	1955
	Kalibangan II	2225+115	2586
	Rojdi	2283-2198	
	Nagwada IB	2153	
	Lothal VA	1555+130	1735,1701
Late Harappan Phase (1900-1500 B.C)	Lothal VC		1600
	Daimabad	1760 + ?	1961
	Rojdi	1285 + ?	1424
	Prabhas (Late)	1800 -1500	
	Bet Dwarka	1528 (TL)	1528 to 1700

3.2 Gujarat and the Indus civilization

Archaeological investigations in Gujarat have brought to light a detailed picture of various cultures of which the recent years witnessed much stress is the study of Harappan Culture. Although, the core region of the Harappan Civilization lies in the Indus Valley, the presence of a large number of Harappan sites of varying cultural milieu in Gujarat indicates that this region enjoyed equal importance during the Harappan Period. Some of the important excavated Harappan sites of Gujarat are Dholavira (Bisht 1989), Surkotada (Joshi 1990), Kuntasi (Dhavalikar et.al 1996), Nageswar (Hegde et.al 1990) Nagwada (Hegde et.al 1988), Rojdi (Possehl and Herman 1989), Padri (Shinde 1992) Rangpur (Rao, 1963), Lothal (Rao, 1979 & 1985) etc. The study of material remains from these and other excavated sites along with the explored materials from various parts of Gujarat have enhanced our understanding of Harappans and at the same time given rise to various debatable issues. These include their varying subsistence pattern from one region to another; regional identities; varieties of ceramics, often referred to as typical/classical, regional/indigenous and also specific types indicative of their contact with contemporary Chalcolithic cultures; their relation with the surrounding geomorphology, significance of location of settlements, function of the settlements etc. Each of these issues offers tremendous potentials to be tackled independently.

The recent excavations at the site like Loteshwar, Dholavira, Lothal Padr, Datrana, Prabhas Patan, Motipipli, Surkotada etc indicate that even prior to the Integration Era Gujarat was inhabitated by the Chalcolithic communities (Sonawane and Ajith Prasad 1994; Ajith Prasad 2002). These Pre Harappan/ Non-Harappan communities can be identified based on their archaeological characteristics and geographical locations. They are the Anarta Tradition (North Gujarat), Micaceous Red Ware and Padri Ware (Gulf of Khambat), Pre- Prabhas (Prabhas Patan) and a Poly chrome tradition of Kachchh region. Some of the recent researches further

made a categorization of the Harappan culture in Gujarat in to Sindhi Harappan showing close connection with the Indus proper and Sorath Harappan having a strong regional identity (Possehl 1992). The Localization Era is best represented at the later stages of the major sites like Lothal , Dholavira, Rojdi and Rangpur in Gujarat which fall after the time period of approximately 2000 B.C.

3.2.1 Early Inhabitants

The history of human habitation in Gujarat can be traced back to the Paleolithic times. The Lower Paleolithic has a wide distribution all over Gujarat, though the Middle and Upper Paleolithic are less known in terms of their distribution and chronology. The Lower Paleolithic sites were reported from the banks of river Sabarmati in North Gujarat, Orsang, Karjan, Mahi and Lower Narmada in central Gujarat (Sankalia 1974: 89). The Lower Paleolithic tools from south Gujarat, Saurashtra and Kachchh shows that the whole of Gujarat was once inhabited by the early man. In case of Mesolithic Culture, Gujarat is one of the prominent regions where researches have been carried out right from the inception of pre historic studies in India. Langnaj is one of the most important Mesolithic sites in Gujarat (Sankalia 1965). The excavations at Loteshwar, Ratanpura, Kanewal and Tarsang indicate the existence of a Mesolithic community supplemented their subsistence with hunting and gathering. The radiocarbon dates obtained from the Mesolithic deposit at Loteshwar suggest an early beginning of microlithic tradition in Gujarat around 6th millennium BC. This tradition continued even after the emergence of the earliest farming and stock raising communities. (Sonawane 2000: 138). Detailed studies (Possehl 1976; 1980: 67-80; Sonawane 1996) presume a symbiotic relationship between the chalcolithic and microlithic using communities in Gujarat.

3.2.2 Pre and Pre/ Non Harappan Cultures of Gujarat

Until recently it was believed that the early inhabitants of Gujarat are the immigrant Harappans, who established their settlements in different parts of

Gujarat with a view to expand their industrial base during the Mature/Urban phase (Sonawane 2000). The recent studies carried out at Loteshwar, Padri, Dholavira and the re analysis of archaeological data from Prabhas Patan, Lothal and Surkotada has suggested that prior to the coming of Harappans Gujarat was inhabited by regional NonHarappan Chalcolithic communities (Sonawane 2000: 140). Calibrated radio carbon dates for this cultural Phase from Loteshwar, Padri and Prabhas Patan goes back to the second half of the fourth millennium BC (Sonawane 2000: 140). The region of Kachchh, North Gujarat and Saurashtra have revealed sites of Pre Urban Phase, establishing the existence of the indigenous regional chalcolithic traditions having different kind of pottery than the Harappan pottery types like the Anarta Ware (Ajithprasad and Sonawane: 1993), Micaceous Red Ware (Rao 1985; Herman and Krishnan: 1994), Padri Ware (Shinde and Kar 1992), Pre Prabhas Ware (Dhavalikar and Possehl 1992), and Black and Red Ware (Rao 1979). The table (Table 3.4) shows the distribution of Type sites, major ceramic types, and calibrated dates for the Pre/Early Harappan Phase of Gujarat.

3.2.2.1 Pre-Prabhas Ware

The Pre-Prabhas Ware is the first non Harappan assemblage unearthed in Gujarat in 1950's during the excavations at Prabhas patan (Somnath) in Junagadh district. The non Harappan pottery types recovered from the excavation mainly includes Coarse Red-Gray Ware, Red Slipped Ware, Black and Red Ware and an Incised Red Ware (Ajithprasad 2002). The fabric of all the above pottery was predominantly coarse and was handmade. However, the external surface is smooth and even shows fine burnishing. Wide mouthed jars and dishes are the important shapes represented by the Coarse Red-Gray Ware. On the other hand the Incised Red Ware is crude and coarse in fabric, lacks any surface treatment as such. The incised decorations mainly include bold strokes, probably executed with a blunt instrument. The major shapes include deep or shallow basins. The third category, Black and Red Ware is made of relatively fine clay and has a bright red slip on the

Table 3.4 List Showing Pre/Early Harappan Phase of Gujarat

Culture	Type site	Period	Ware	Shape	Chronology	Remark	Excavated
Pre Prabhas+Prabhas	Prabhas Patan (Somnath)	I and II	Coarse Red Ware, Red Slipped Ware, BRW, Incised Red Ware	Hemispherical bowl with slightly incurved and bevelled rim; medium sized jar/pot with an everted short rim	2892 cal BC 2911 cal BC	Coarse and handmade	State Archaeology Dept and MSU of Baroda
Anarta	Loteshwar	II	Gritty red Ware, Fine RW, Burnished RW, Burnished Gray/Black Ware	Small to mediun pots with flaring rim, constricted neck and a bulbous body,straight/convex sided bowls with slightly incurved rims,basin with a thick flaring out rimand a blunt carination below	2921 cal BC 3698 cal BC	Bichrome decoration painted with varying shades of black/red pigment on a white /cream background	MSU of Baroda
Pre-Harappan (Burrial Pottery)	Nagwada Moti Pilpi	IA		Large bulbous pots, flasks / beaker shaped vases with narrow opening, beakers with flaring rim, dish on stand with up turned rim, dish with no carination and shallow bowls	2200 cal BC		MSU of Baroda
Padri	Padri	II	Padri Ware	large globular storage jars with beaded or clubbed rims and small flat bases	2200-2000BC	pots are decorated with horned linear human figurines	Deccan College Pune
Micaceous Red Ware	Lothal,	I	Coarse Red Ware (Mica dusted)	convex sided bowls, shallow dish/basin, basin, lamp, jar bottle and perforated jar	2000-2500BC		ASI Rao (1985)

exterior. The shapes of the Ware include wide mouthed jars and a small carinated handy. In case of Gray Wares, they do not have a grayish surface consistently and sometimes the vessels are found in drab red color. The major shapes include dishes and wide mouthed jars. Jars with smaller mouth were also available. Some of the vessels have flat bases as well. Ceramics comparable to Pre Prabhas type were also reported from Datrana as well (Ajith Prasad 2002).

3.2.2.2 Anarta Tradition

It is mainly identified on the basis of a group of pottery which is different from the Harappan. The pottery was first identified in the excavations at Nagwada in 1985, where it was found associated with the mature Harappan elements. But the independent nature of the ceramics was established only after the excavations at Loteshwar in Mehasana district in 1991. The ceramic assemblage consist of four major types viz, the Gritty Red Ware, Fine Red Ware, Burnished Red Ware and Burnished Gray/Black Ware. Among these the Gritty Red Ware is the most dominant type with two sub types and it is followed by the Fine Red Ware. The other two types are relatively rare (Ajithprasad 2002).

The Gritty Red Ware vessels are either handmade or made on a slow wheel. The clay is elutriated and contains sand as tempering material. The major shapes include small and medium sized pots and Jars with flaring rim, constricted neck and bulbous body, large pots, convex or straight sided bowls with slightly incurved rims and basins with a thick flaring out rim and a blunt carination below it (Ajithprasad 2002). The slip varies from red to chocolate and its various shades. Most of the vessels show a bichrome decoration as they are painted with varying shades of black or red pigments on a white or cream background. The decorations mainly include geometric designs .The vessels have a dull appearance even after the application of slip and decoration (Ajithprasad 2002: 139).

The fine Red Ware, the second type, is similar to Gritty Red Ware in its shapes and decoration. Here, also the vessels are made out of elutriated clay, containing fine mica particles in it. The burnished Red ware and the Burnished Gray/Black Ware are represented by small pots with thin walls or jars with a flaring rim, constricted, elongated neck and a bulbous body. The vessels are slow wheel turned and have a well burnished smooth surface. The Burnished Red Ware is painted with parallel and wavy lines in panels using a white or blueish gray pigment on a black background over a bright red slip. The Burnished Gray/Black ware is painted with a fugitive white colour, similar to the white paintings of black and red ware of the Harappan times. All the above pottery types have common vessel forms and shares common features in their pattern and scheme of decoration, suggesting that they all belong to a single pottery tradition. (Ajithprasad 2002:143)

3.2.2.3 Padri Ware

The Padri Ware vessels are either hand modelled or made on a slow wheel and is treated with a thick red slip. It is decorate with painitng motives like geometric lines and other bresh strokes with less perfection in its application. The colour mainly preferred is black (Shinde 1992). The clay is well levigated and is fired in uniform temperature. The repertoire is comparable to Rojdi B Type ceramics further divisible in to sturdy Red and Buff Ware and thirdly Coarse Ware (Shinde 1992). The Fine Ware can be divided in to thick and thin variety. In thick variety large globular storage jars with beaded or clubbed rims and small flat bases are the most common types. Such pots are also decorated with horned linear human figurines (Shinde 1992). Cylindrical perforated jars, shallow dishes and step sided dishes are also encountered in this Ware. The thin variety includes convex sided bowls and globular pots. The midle level Padri ware is coarse and treated with a cracking thick red slip (Shinde 1992).

3.2.2.4 Micaceous Red Ware

The chalcolithic settlements in the region between Gulf of Cambay and Nal depression, traditionally known as Bhal region, revealed a distinct type of pottery. As the name indicate, the ceramics exhibits a smooth mica dusted surface with a fine slip ranging its colour from pink to red and from light brown to gray. A burnishing is also present. The surface of the vessel does not show any striations and have subdued to a marked shining (Herman and Krishnan 1994). The major shapes include convex sided bowls, shallow dish/basin, basin, lamp, jar bottle and perforated jar (Herman and Krishnan 1994). Lothal and Rangpur are the two important sites where Micaceous Red Ware is associated with the Harappan red ware. A chronological estimation of 500-700 yrs (2550-1800BC) is possible from the study of associated materials recovered from the sites like Rojdi, Vagad, Ratanpura along with Lothal and Rangpur (Herman and Krishnan 1994).

3.2.2.5 Chalcolithic burials and Pre-Harappan pottery

These types of potteries are mainly reported from the burials and a few habitation sites in north Gujarat. The major sites include Nagwada (Period IA), Santhli II, Moti Pipli and Datrana.

At Nagwada (Period IA) two types of burials were found. They are the extended inhumation and the symbolic pot burials. The major wares of the Burial pottery include Red Ware, Pinkish Buff Ware, and a Gray Ware (Hegde etal. 1988). The vessels were made out of elutriated clay and were decorated with slip and paintings, even though it was peeled off in most cases. The major shapes consist of large bulbous pots, flasks or beaker shaped vases with sides converging in to a narrow opening, beakers with slightly flaring rim, dish on stand with up turned rim, dish with no carination and shallow bowls. The bulbous pot has a flat base, short straight neck and flat rim. The paintings are found on the rims and on the shoulders and the

decorations consist of wavy lines and thick bands. These shapes and decorations shows a similarity with the Pre Harappan ceramics reported from Kot diji, Amri and Balakot (Hegde et.al, 1988). Similar type of ceramics were also reported from the burials at Santhli II. In case of Moti Pipli the ceramic assemblage includes all the vessels reported from Nagwada, Santhli, and Surkotada. In addition to that certain new shapes like large pots with prominent flange below the rim at the shoulder and thick black band at the rim, dish on stand with poly chrome paintings were unearthed and can be compared with the Early Harappan phase ceramics at Kot dij (Majumdar 1999).

Thus on the whole a Pre/Non Harappan phase is established in Gujarat after the excavations at Prabhas Patan, Nagwada, Loteshwar, Dholavira and Padri and also revealed the evidence of a settled life prior to the coming of Harappans. The evidence from the lowest levels at Lothal suggests the presence of an indigenous people practising incipient agriculture represented by a Coarse Micaceous Red Ware. The excavations at Nagwada in the Rupen River Valley in North Gujarat have yielded the evidence of human occupation. An extremely fine pink ware comparable to the early levels at Amri along with a human burial is recovered from the excavation, which can be dated to the third millennium B.C (Dhavalikar, 1995:22). The excavations at Datrana also revealed a group of pottery similar to the Anartha, Pre-Prabhas type and Early Harappan pottery reported from the burials at Nagwada and Santhili. The pre prabhas pottery from Datrana is assignable to 2900-3000 B.C (Ajithprasad, 2002: 135-136). All these shows that there must have been an indigenous population established long before the Harappans came to Gujarat which continued along with the Harappans till the end of their occupation (Bhan 1994: 78).

3.2.3 The Mature /Urban Harappan Phase

As a result of the recent archaeological studies, two distinct categories of settlements were identified in Gujarat during the Mature /Urban Harappan Phase. They are the

sites with Classical Harappan traits (Sindhi) and sites with regional manifestation of the Harappan (Sorath Harappan) domains respectively (Possehl 1992).

Rao (1963) cultural sequence at Rangpur acted as the chronology of the Harappan sites in Gujarat for a long time. At Rangpur, he identified three periods, period I - Microlithic Culture, period II - Harappan culture, period III - Lustrous Red Ware or Post Harappan Culture. He further divided Rangpur II or the Harappan Culture in to three phases, IIA, IIB, and IIC. He termed IIA as the final phase of Mature Harappan in relation with Phase IV of Lothal A, IIB as the Late or degenerate Harappan Culture and IIC as the transition phase of the Harappan Culture. Thus, Rangpur for the first time revealed a stratigraphic relation between the Late Harappan Phase (Rangpur IIB) and the Mature Harappan (Rangpur IIA). It was believed that most of the sites with an affiliation to Harappan Culture found in Saurashtra belonged to the Late Harappan or Post Urban phase (Possehl and Rawal 1989: 19). This argument was mainly based on the mixed subsistence economy involving pastoralism and agriculture and the stylistic comparison of the ceramics and was not supported by any carbon14 dates. The excavation at Rojdi revealed three phases labeled as Rojdi A, B and C. (Possehl and Rawal 1989). In general, the material assemblage of Rojdi A, B and C resembles that of Rangpur II B and C and the other related sites. The carbon 14 dates from Rojdi also indicate that all the sites in Saurashtra with the pottery from these two phases should be dated to the urban Harappan phase and not to the Post Urban or Late phase (Possehl 1992: 125-128). Thus Rojdi and many other sites in Saurashtra represent a newly discovered regional expansion of the Harappan urban phase and Possehl proposed the name 'Sorath Harappan' to the new regional urban phase culture (Possehl and Rawal 1989: 13). He also identified 152 rural settlements as Sorath Harappan. Most of these settlements are small with a stone foundation and a stone wall and have been interpreted as small rural villages and dry seasonal camps of those engaged in millet cultivation and pastoral subsistence (Possehl 1989: 27-50).

Further, Possehl (1989) broadly categorized the Harappan sites of Gujarat as 'Sindhi' and 'Sorath Harappan'. He defines 'Sindhi Harappan' of Gujarat as the Harappans who settled mainly in and around Kachchh. They have the same cultural tradition or possess elements of the typical Harappans. These are enumerated by him as the inscribed stamp seals, Indus weights, metal works, beads, architecture and ceramics painted in classic black on red style known from the places like Mohenjo-Daro, Harappa, Kalibangan, Amri etc (Possehl 1989: 10). Possehl argues that the Sindhi Harappans were the people of Sindh who migrated to Saurashtra through Kachchh, the present border area of Gujarat about 2500 BC. They seem to have come to Gujarat in an effort to assess and utilize the material wealth of this region (Possehl 1989: 11). According to him, the main Sindhi Harappan sites in Gujarat are Surkotada, Desalpur, Pabumath, Dholavira, Nageswar, Nagwada and Lothal. The Sindhi Harappans share the material inventory of Harappan sites of Sindh along with the local/non-Harappan and Early/Pre-Harappan ceramic types (Bhan 1989). Majority of these settlements seem to have developed to facilitate administration, which is reflected in the construction of massive lime stone walls and bastions at Surkotada, Dholavira and Desalpur and for trade and also to access raw materials as indicated by the material inventory and location of the settlements of Nagwada and Moti Pipli in north Gujarat, Nageshwar and Lothal in Saurashtra (Bhan 1994).

While discussing the pottery, there is a common agreement among the scholars that the difference between the Sindhi and Sorath Harappan pottery is marginal. The Sindhi Harappan pottery has got generally a red surface and is wheel made, although hand made specimens are also available. The regular striation marks on the pottery suggest the fast wheel turned technique of production. Sand or lime or both is used, as degraissant (Dales and Kenoyer 1986: 44). Most of the wares are sturdy and well fired. The pots and some of the jars have got flat bases. Certain types with pointed bases are also there and these require jar stand. A good percentage of them are slipped. The slip

varies from a thin to thick, colored with creamy to reddish, brownish, purplish and black. It is generally the upper part of the pots that is covered with slip; the lower portion is left rough and some times decorated with cord impressions. Some pottery shapes have got full slip, for instance the large pointed bottomed jar; very fine ring based grey ware pot and a pot of grey ware with external horizontal ridging (Dales and Kenoyer 1986: 43). The main pottery shapes are dish-on-stand, dishes, 'S' profile jars, pans, tumblers, beakers, goblets (tall with solid base), basins of varying forms, jar cover or lid, cylindrical jar with a wide flat base, handled cup, jar stands of varying size, the perforated pots - tall and cylindrical in form, storage jars and many other miniature forms. The painted decorations are usually over the slip or over the natural surface. These range from simple horizontal bands to intricate combinations of geometric designs, abstract and naturalistic motifs (Dales and Kenoyer 1986: 47).The potteries of the Sorath Harappans were made of well levigated clay having fine sand added as degraisant. The important vessel types are the bowls, stud handled bowls, perforated pots, pots, jars, basins, dishes, dish on stand, goblets, lamps, jar stand etc. The decorations mainly include paintings, graffiti, incisions, impressions, relief and patterns created by burnishing. Special surface treatments for fine wares include combinations of special band with slipped and unslipped zones. Horizontal bands are present on the coarse ware.

More than 500 sites with different degree of Harappan affiliation are reported from Gujarat. Among them only 25 belongs to the Mature/Urban (Sindhi Harappan) Category. Among them also a concentration of more than half is observable in the Kachchh region and the rest are meagerly distributed in other parts of the region. A close observation shows that all these sites are located either on the coastal region or the margins of Ran of Kachchh. From the location, size and nature of the settlement pattern, percentage/concentration of economic goods and manufacturing wastes shows that these settlements were engaged in specialized craft production as

industrial/manufacturing centers, or both and might have remained mainly for trade and access to raw materials required by the Harappan Urban centers (Sonawane 2000: 141) The south ward extension of the Harappan is seen mainly as to explore the natural raw material which was necessary for the trade rather than acquiring the entire territory for political dominance (Sonawane 1992).

So the regional variations of Harappan culture in Gujarat during the mature Harappan times can be explained as different sites were having a different function and degree of specialization and thus by varying location and subsistence pattern and slightly different material inventories to cope with different regional settings of Gujarat.

3.2.4 The Late/Post Urban Harappan Phase

The Late Harappan/Post-Urban Harappan phase in Gujarat is best represented at Rangpur IIC and III, Lothal B, Rojdi C, Prabhas Patan II and III, Padri III B, Kuntasi II, Vagad I B and I C (Sonawane 2002: 166). In addition to this the sites like Kanewal, Nesadi, Ratanpura, and Oriyo Timbo shows an independent existence of a Post Urban Harappan Phase. The characteristic feature of the particular phase of cultural occupation in Gujarat is the gradual economic decline in material culture which may cause for the process of de urbanization (Sonawane 2002: 167). A change in the total ceramic assemblage is observable from the Mature Phase of occupation as the characteristic forms like Indus goblets, beakers and S shaped jars completely got disappeared. However certain ceramic forms like perforated jar continue with slight changes in form and decoration as the naturalistic decorations were somewhat replaced with the geometric ones. The major changes are observable in certain shapes as the convex type bowls developed a blunt or even sharp carination at the shoulders, the stud of the stud handled bowls became longer, the stem part of the dish on stand became squat while the projected rim developed a beaded rim. Certain ware like

Lustrous Red Ware with its characteristic polished red slip and the white painted Black and Red Ware are conspicuous with their presence (Sonawane 2002: 167).

In addition to the ceramics, artifacts like long Rohri chert blades, cubical chert/agate weights, were also disappeared. The TC beads became common and some of the semi precious stone beads and shell bangles and shell objects continued to some extent because of the local availability of the raw material. Deterioration is also observable in the architecture and in the subsistence pattern as well. The massive brick structures were replaced with simple round huts with wattle and daub walls. A gradual shift in the subsistence strategy from farming to herding is also observable (Sonawane 2002).

Thus, on the whole the post urban phase witnessed a gradual decline in cultural variables and in the subsistence and settlement pattern. Even though there is a decline in the material prosperity, a continuity of the Harappan tradition was observable (Sonawane 2002: 170). Even though there is a certain decline in the material prosperity, a continuation and a transformation of urban way of life in to a rural one is observable the Late Harappan Phase. The exact reason for the decline is still not devised, attempts were made to see the climatic changes, tectonic movements, shift in the hydraulic regime, and a sudden fall in the long distance trade on the core region (Gosh 1993) as the reason.

3.3 The Site: Bagasra (Gola Dhora)

Bagasra (23°3’30”N;70°37’10”E), is a Harappan site located on the eastern extremity of Gulf of Kachchh in Maliya Taluka, Rajkot District, Gujarat State. The archaeological mound measuring 1.98 hector is locally known by the name “Gola Dhora” meaning round/circular mound) is located half a km north west of the present day village. The site is situated about 40 km north of Morbi town and is easily accessible either by road or rail up to Bhavpur, which is just two km east of the site. It is also approachable by

road from Dahisra village, 6 km south of Bagasra. Dahisra is connected with Morbi both by rail and road. As the site is located at a strategic point connecting Kachchh, North Gujarat and Saurashtra, the three major cultural regions of Gujarat, it shows distinct cultural traits of the above three in the Chalcolithic times (Sonawane et.al. 2003).

The site was first reported during a joint exploration carried out by the Deccan College, Pune and the Gujarat state Archaeology Department in the late 1980's. The excavations started at the site on 1996 and came to an end on 2005. The excavation revealed a fortified settlement of the Mature phase Harappan Culture The roughly rectangular site stands 7.50 m from the surrounding . The low laying surrounding regions accumulates water in monsoon and the mound becomes an island. The large depression between the mound and the village retains the rain water till the end of March and serves as a village tank, a mean source of water for the villagers (Sonawane et.al 2003).

Since the site is situated in a semi arid zone the climate is dry and the rainfall varies from 250 to 450 mm annually. The subsistence is mainly based on agriculture, stock rising and salt production etc. The crops mainly include wheat, horse gram, bajra, and cotton. Among the crops wheat and horse gram were cultivated with the help of irrigation, while bajra and cotton is mostly dependant on the monsoon. The seasonal agriculture is supplemented by stock rising, mainly carried out by two communities, Bharwards and Rabaris. Salt production, undertaken by two large companies and some other entrepreneurs of the village also act as a source of income. Fishing, another economic activity is heavily dependant on the ebb and flow of high tides. This is carried out by the kolis, the fishing community, who stays at Maliya, about 20 km north east of Bagasra on the main shore of Gulf of Kachchh (Sonawane et.al 2003).

3.3.1 Nature and Stratigraphy

The archaeological mound measuring approximately 160x20m is roughly rectangular in shape and has a height of 7.50m from the surrounding plain. On the southern side it is a small rectangular area measuring 12x8m and gently slopes towards the agricultural fields. The north western part of the mound is a large open area measuring 100x50m, slopes towards the north to a minimum height of 5 m. The intact periphery wall under the soil cover on the northern part keeps the mound steep on the northern portion of the site. The trenches at the site is designed, first by the main 300x300m grid number (1 to 9) followed by a 100x100m grid (A to I), followed by a 20x20m grid (a to y) and finally by the 5x5m grid (1 to 6) layout (Sonawane et al 2003: 24).

Among the six trenches selected to expose the complete stratigraphy, Er13 and Eq2 were located at the highest part of the mound in the eastern side, while Do5 and Do7 on the south and Es4, Es10 were located on the southern portion of the mound. However the trenches Do7 and Es4 excavation did not touch the natural soil. Among the four trenches Er13 has a cultural deposit of 7.75m. Seventeen layers have been identified in this trench. Eq2 another deep trench stands second with a cultural deposit of 6.5 meter consisting of 20 layers. Based on the structural features and material remains, the habitation deposit can be divided in to four phase of Harappan occupation (Table 3-5). Here, the first three phases belongs to Urban and the fourth one to the post-Urban comparable to Rangpur period IIC and Rojidi-C.

3.3.1.1 Phase I Occupation

Phase I represent the early stage of urban phase Harappan occupation at the site. It is also called the pre fortification phase due to the absence of the fortification. The average thickness of the cultural deposit is from 1.00 to 1.75m. The structures of this phase were built of dark mud bricks, which follow the standard Harappan ratio 1:2:4

in their measurement. Associated with the structures, a series of ashy floors with white plaster at regular intervals were also found (Sonawane et.al. 2003).

Table 3.5 Cultural Sequence of Bagasra (After Sonawane et.al. 2003)

Phases	Diagnostic Association: Statigraphic, Artefactual and Architectural	Cultural affiliation and Correspondence
Phase –I Early Urban	Pre Fortification	Classical Harappan/Urban Sindhi Harappan and Anarta
Phase- II Urban	Fortification	Classical Harappan/Urban Sindhi Harappan and Anarta
Phase –III Late Urban	Sorath Harappan (Rangpur- IIA and IIB)	Classical Harappan/Urban Sindhi Harappan , Anarta and Sorath Harappan (Rangpur- IIA and IIB; Rojdi A and B)
Phase –IV Post Urban	Sorath Harappan (Rangpur- IIC)	Post-Urban Sorath Harappan (Rangpur IIC and Rojdi C)

The Ceramic assemblage of this phase consist of Classical Harappan red ware with some characteristic shapes such as the dish on stand with incised decorations, perforated vessels, deep basins with tapering bottoms, and shallow dishes etc., the "Anarta" pottery types of the North Gujarat region (Sonawane and Ajitprasad 1994) and vessels belonging to the local ceramic tradition including some bichrome slipped pottery (Particularly Fine Red Ware pots). Micaceous Red Ware was also found which is believed to be closely related to the similar type of transition stage between the Pre Urban and Urban Harappan at Dholavira.

In addition to pottery, shell industry waste, finished shell bangles, terracotta cart frames and wheels, triangular terracotta cakes, copper implements, a small cubical agate weight, beads of lapis lazuli and carnelian were also found from these deposits.

This indicates that the economic base for the later urban way of life had already emerged by the end of this phase. The ceramic assemblage recovered from this phase is somewhat comparable with Surkotada IA, which has a C14 date of ca 2450 B.C.

3.3.1.2 Phase-II Occupation

The presence of the massive fortification wall, association of the craft activities (shell, faience, stone bead, copper working etc) and evidence of seals and sealing with writings along with variety of other cultural artifacts, planned structure, and the dominance of Classical Harappan pottery with naturalistic paintings raise the status of Phase II as the most prosperous period in history of Harappan occupation at the site. The association of the Classical Harappan artifacts like the inscribed steatite seals , terracotta sealing, beads of steatite, faience, lapis lazuli, amazonite and carnelian, long blades of Rohri chert, shell bangles with chevron marks , terracotta cart frames and triangular cakes, copper, bronze spear heads and chisels etc shows the urban character of the phase. The cultural debris of the phase at site is not less than 5 meters and is best represented in trench Eq2, where layers 17-1 represent the urban habitation. Three successive stages of construction of fortification wall are observable at the trench. The layers from17-13 is associated with stage I, 12-8 to stage II and 7-1 to stage III (Sonawane et.al. 2003).

The ceramic assemblage of this phase incorporated three distinct types of pottery: the Classical Harappan pottery, the Anarta pottery of the North Gujarat region and local ceramic types. Harappan pottery recovered from these deposits included large storage jars, deep basins with narrow bottom and flat bases, shallow dishes, dishes on stand with a sharp carination, beakers, sherds of perforated jar, S-profile jars and black slipped jars in both Red Ware and Buff Ware. Several sherds with characteristic Harappan painted motifs and incised decorations such as crescent shaped nail impressions at the center in some of the dishes on stand were present. The presence of

Sorath Harappan sherds (convex sided bowls) in the upper levels of the phase indicates the beginning Sorath Harappan interaction at the site, which became prominent in the succeeding phase III (Sonawane et.al. 2003: 31).

This phase is also emphasized by the discovery of two inscribed steatite seals and a few terracotta sealings bearing inscribed seal impressions. Other Urban Harappan relics such as beads of carnelian, amazonite, lapis lazuli, steatite and faience, shell bangles with chevron decoration, long blades of Rohri chert, copper/bronze spearhead and chisels, terracotta toy cart frames and triangular cakes were also recovered from this deposit.

3.3.1.3 Phase-III Occupation

This is the terminal stage of the Urban Harappan occupation at the site. A change is observable in the material remains from the previous phase. It is distinguished from the preceding phase-II by the preponderance of the Sorath Harappan artifacts. It has an average thickness of 1.20m, though at places it increases to a maximum of 2m. It does not incorporate remains of regular habitation floors. It also revealed several clay lined storage silos and large storage pots generally embedded in the floor have also been excavated from this phase. Not many constructions took place in the phase as such while the phase II structures were reused. The presence of pits and improper waste disposal clearly shows the disarray in construction. The different craft activities are supposed to have continued during the phase but may be in a less organized way. This phase incorporates several sherds of the Sorath Harappan pottery including the convex and straight sided bowls, stud handled bowls, large and medium sized jars and pots with distinct rim features and basins and dishes in Red Ware and Buff Ware. Besides these, also found Micaceous Red Ware and Black Ware. Other artifacts like variety of beads, shell bangles and terracotta cart frames and triangular cakes and a cubical chert weight are also found from this phase.

3.3.1.4 Phase- IV Occupation

The last Phase is characterized by the dominance of Sorath Harappan pottery, which is compared with the Rangpur-IIC and Rojdi-C periods. An interesting feature of the cultural occupation at the site is that the entire phase is found confined to the southern part of the mound which extends 35 to 40 m from the fortification wall which was followed by huge pits full of ashy materials (Sonawane et.al. 2003). No building remains are traceable except a few rubble stone structures in the trenches like Es3 and Es4. There are some pits on top of the massive mud-brick wall. This phase shows a few copper hooks, a chisel, and a small rectangular knife, and reasonably well made pottery.

Even in a general observation it is evident that most of the trenches were concentrated on middle of the mound and extending to the southern portion. This is mainly due to the nature of the mound as the northeastern and northwestern portion of the mound has a sudden steep and is suddenly encountering the agricultural fields, which is presently devoid of artifacts. The structures inside the trenches on the northern side of the mound reveal the story of a fortification with inner bastions. The overall view of the artifacts in the excavation reveals the fact that there existed some sort of industry and specialization in the site that abruptly came to an end in the third phase. The fourth phase material confined outside the fortification continued without any cultural break. Due to the nature of occupation (small but protected with huge fortification) and the geographical position (falling in the centre or equal distant from the three geographical divisions of Gujarat) and the availability raw materials like coral reefs, the habitat of shell and local chert and the close proximity of the sea; force us to presume that the site must have been acted as a contact area or a halting place of the long distant traders of Indus, and supplied some item for trade (shell , faience, stone beads etc,) The sudden fall in the internal and external trade, which is

one of the probable causes of the decline of Indus Civilization (Joshi 1990) might have caused the de urbanization of the site But the production of pottery which is inseparable to any kind of society, stayed there without much harm though they are getting some new local shapes in the fourth phase. It can be assumed that the local tradition continued in absence of a supreme controlling authority due to the fall in the long distance trade. Thus the fortification became unnecessary in absence of craft production and the people started moving out of the fortification.

3.3.2 Fortification and Structural Remains

The excavations of the ten continuous field seasons have revealed remains of various structural remains including that of a massive fortification which divides the settlement in to two halves (1) The fortified northern half and (2) The southern half laying outside the fortification. Most of the structures clearly comes inside the fortification and belong to the phase I and II of the Harappan occupation, while phase III and IV does not show any new structural activity as such except a few flimsy structures. It is found that the structures of the Phase II are in use in the third phase as well but were partially destroyed by many pits in the IVth phase.

3.3.2.1 Phase I Structures

The structural remains of the first phase of Harappan occupation at the site is noted from the earliest levels of the deep trenches at the site. Among the excavated mud brick structures, the structure at Eo10, located out side the fortification stands as the best example. Here the structure is made out of fine, dark-gray mud of uniform composition. The structure measuring 3.7x 3.3m with two doorways, basically constructed over the debris of an even earlier structure. It stands nearly 1 m in height, with a thickness of 0.65m and incorporates 8 to 9 vertical courses of mud bricks. The clay mortar used as a binding medium is of very fine quality and of light in color than the bricks. A thick white color paste was used to plaster the floor level. A large pot

was also seen buried in the floor resting on the natural soil. The findings of house hold objects and other materials clearly indicate that the structure is of a regular house of the early levels of habitation The structures which shows remnants of craft activity (Eb11, copper working), pointing the economic prosperity of the settlement in this phase.

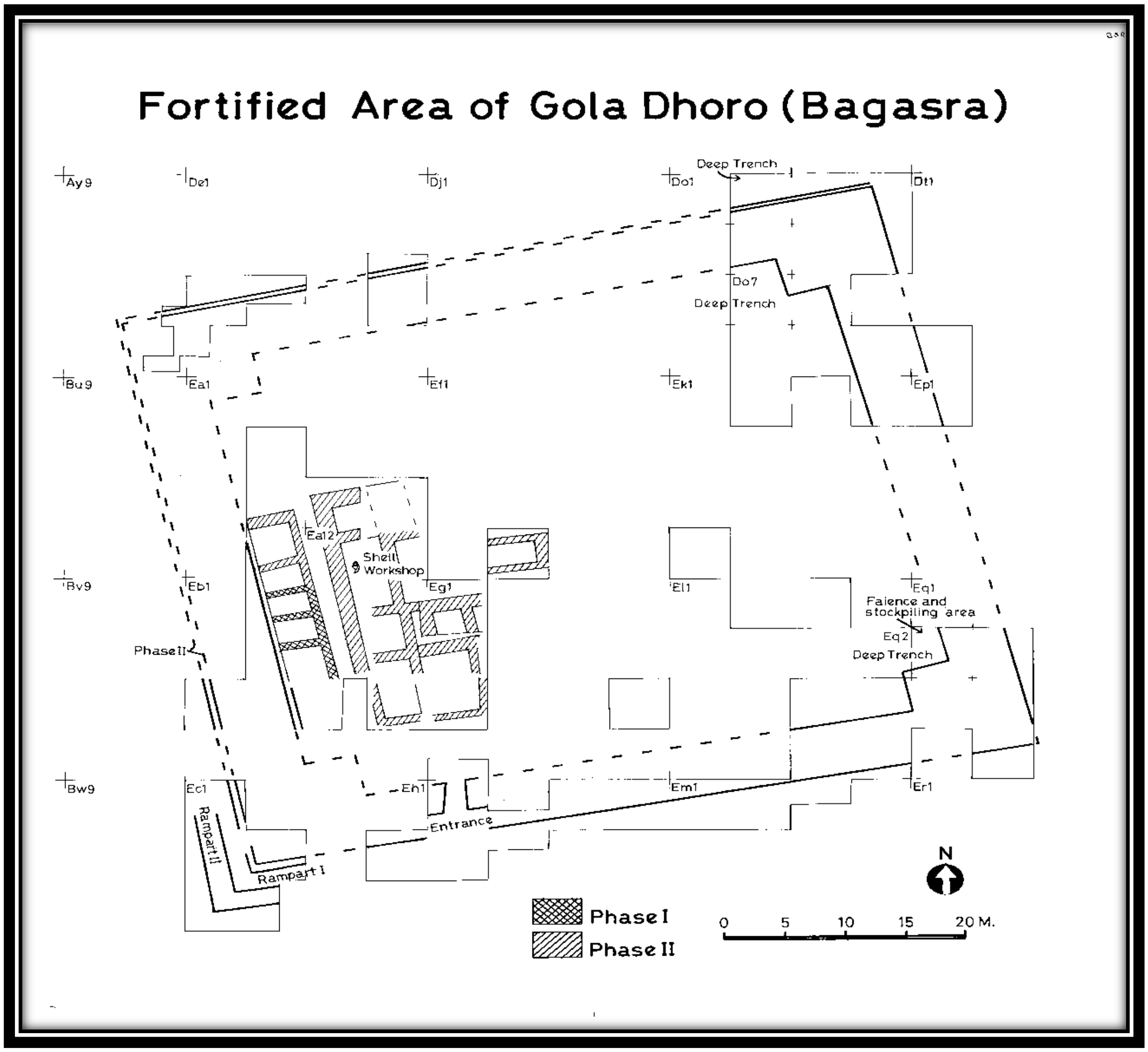
3.3.2.2 Phase II Structures

The presence of the massive fortification which surrounds the entire northern half of the settlement and the systematic planning and layout of the settlements clearly differentiates this phase from the rest and clearly indicate the economic status of the phase. Majority of the structures unearthed in the excavation also belong to this phase. Among the structures of the phase, the fortification walls, which surround the entire northern half of the settlement deserves special mention.

3.3.2.2.1 Fortification

The most impressive structural construction happened in the second phase, the fortification wall, is an imposing structure built in three successive stages with a view towards increasing its height. The fortification measuring 65x57m is roughly rectangular in plan with the longer side oriented east-west (Figure 3.1). The presence of internal bastions further strengthens the fortification. At the south eastern and north eastern corners it is jetting outward and measures 3.80m from the fortification wall. The wall is better preserved in the eastern side while on the western side it suffered extensive stone robbing. In the well preserved eastern side, the total height of the wall, comprising all the three stages of construction is 5 m., tapering from both sides, has got a trapezoidal cross section with the broad base of the wall measuring 7.75m and the narrow top at 5m height measuring only 5.20m.

Figure 3.1 Fortified Area of Gola Dhoro



Good quality sand stones were used for the basement of the fortification. These sand stone slabs might have been quarried from the nearby local sand stone sources which are still in use. These stone slabs were subjected to a preliminary dressing for providing a rough rectangular shape. In case of corner stones, they were cut and dressed to a perfect angle and a smooth surface. The ripple like, shallow scoop marks on the stones indicates the use of some copper/bronze celts with long edges. The stone base is followed by a few courses of mud bricks .This pattern is followed in all the three stages, except in stage –III, where a stone bracing is replaced the solid stone

base. Even though, the mud bricks used in the construction of the wall follow the standard Harappan ratio (1:2:4), are varying in color, composition and size.

3.3.2.2.2 The Entrance or Gate

The narrow depression on the extant surface of the eastern fortification wall dug in to the entrance of the fortification at Bagasra in the 2005 field season. Earlier, the passage excavated in the southern wall in the trenches Eh1 and Eh2 evoked the feeling of an entrance/exit to the fortification. But, the narrow appearance of 1.04m creates doubts about whether it is a closed drain or an entrance as such? Due to the robbing of the stones it became very difficult to ascertain whether the passage was built over a closed drain, which was the general practice of the Harappans. Further excavations established it as a narrow passage between the southern area and the area enclosed by the fortification.

The excavations conducted on Ep2, Ep3, Ep6 and Ep7 on the eastern side of the fortification revealed a large gap cutting across the 5.25m thick fortification wall. This was filled with brickbats, , stone rubbles ,occasionally pot shreds and animal bones. The absence of the phase III material in the above filling suggests the phase II date for the building activity. The passage or entrance is located a few meters off of the eastern wall which is 59 m long and the passage is 1.82m wide as well. Two stages of construction of the entrance are identified in relation with the increase in the height of the habitation level. The level I construction of the entrance has got a height of 3.10m from the base. The entrance at this stage was 2.20m wide and probably had stone bracing on both sides of the wall. The post holes at the edges of the porch on the east evoke the feeling of a canopy like roof over wooden pillars. In the second stage when the height was increased the floor level was paved with mud bricks. The opening of the gate at this level is further reduced in to 1.80m by adding 20cm thick stone wall on both sides. The porch in front of the gate was replaced by 4.00m broad

rampart or an approach road adhering to the fortification wall. The rampart has got a maximum of three courses which is resting on the phase II deposit. The absence of the phase III material either in the filling or in the rampart road clearly suggest that the construction was happened in the II phase itself and was in use in the III phase as well.

Among the other structures of phase II, the Rampart/retaining wall on the south western corner in the second stage of construction deserves special mention. It was constructed by using the sand stones about 1.80m away from the outer edge of the main wall and was filled with mud and probably consolidated by ramming at the top. The extent length of this wall along the western side from the corner is about 7.10m and on the southern side is over 4m. Another retaining wall with similar structural features appears parallel to the first one, which shows six vertical courses at the corners. From the quality and workmanship of the sand stones and from the associated finds it is clear that both the retaining walls were constructed during the terminal phase of stage II. The best examples of the phase II structures (Wb1, Wb1a, Wb1b, Wb2, Eb9, Eb2, Eq2 etc) shows the urban pattern belong to the stage I and II of construction.

3.3.3 Craft activity and Cultural evolution at the site

Craft, one of the essentials of urbanization (Childe 1958), reflects the social stratification of the society and understanding the degree of craft specialization existed at the site may throw light on various aspects of production and distribution. The excavation at the site revealed a number of craft items having economic importance in the Chalcolithic times. Among the artifacts some items like shell, semi precious stone beads and lithic production, faience and copper working deserve special mention.

3.3.3.1 Shell Working

One of the most important activities pursued in great extent at the site was shell working. The working include the production of shell bangles from T.pyrum, ladles (minor) from Checorious Rinocirous, inlays etc is evidenced from the huge percentage of manufacturing waste, unfinished and finished artifacts of shell. One of the fascinating discoveries associated with this craft was a mud brick structure measuring approximately 5.60mx3.20m with an adjoining chamber situated on the north western periphery inside the fortification. Within this structure three large heap of shell resting against the western wall were uncovered that contain thousands of unused shell of T.pyrum. In between the two shell heaps, thousands of unfinished and finished shell circlets and large quantities of micro shell wastes produced during cutting of the shell and a grinding stone resting below the bangles are really unique and undoubtedly indicate the existence of a shell workshop of Harappan times. The segregation of the shell piles based on quality indicates an eye towards a quality product and a specialized workman ship.

The presence of huge amount of manufacturing waste, several times than the final products, and the percentage of bangles showing different stages of production, recovered from the site clearly indicate the surplus production. The close proximity of the sea and the presence of coral reefs, the habitat of shell justifies the location of the site. Even though shell laddles and inlays recovered from the site fall short for any sort of exchange hence assures that the inhabitants were known the technology of laddle manufacturing and inlay decorations.

3.3.3.2 Lithic Activity

Among the lithic activity production of beads and blades from semi precious stones and faience objects deserves special mention. The excavation of the southern half of the mound (out side fortification), revealed a fairly good number of stone beads

showing different stages of production. The materials include agate, chert, chalcedony, carnelian, and a locally available chert/blood stone? The presence of a good quantity bead roughouts and beads showing different stages of production, number of polishers and huge quantity lithic debitage of different size and shape of different raw material, etc clearly indicate production of stone beads at the site. Assemblage associated with the stone bead production also include tapered cylindrical drills made of chert, jasper, and chalcedony and constricted cylindrical drills made of metamorphic rock that is referred to as ernestite, for drilling soft and hard stones respectively. The presence of raw (Jasper) material neatly segregated and kept in clay lined bins clearly indicate the stockage of raw materials which were used for bead manufacturing. A detailed study of lithic debitage in association with finished products (blade and bead) and usage of a material is essential to explain the process existed at the site during the Mature Harappan times.

As far as the faience working is concerned, it is evidenced from the abundant number of faience tubular and disc beads of different colors and bangles of different size and thickness. The distribution of the faience objects inside the fortification along with bangles and beads, the presence of large white rock quartz, indicate the faience production. One such interesting area measuring 3.5x2m is situated close to the eastern periphery of the fortification wall. Among the discoveries a faience chain containing 56 tubular faience beads with an electrolite/gold pendent from the top of the fortification wall on the southern side deserve special mention as it support the distribution of faience beads from inside the fortification.

3.3.3.3 Copper Working

The amound of copper recovered from the site is quite high when it is compared to the total size of the settlement. The findings mainly include a copper vessel containing eight bangles and an axe perhaps stored for recycling the precious metal,

knives with bone handles, a unique battle axe i.e., 'Parasu' and a variety of small copper objects. No evidence of copper smelting has been found so far from the site. However, recovery of a few heavily sand tempered clay crucibles with copper adhering in them might have been used in melting the copper. The absence of moulds as such perhaps may be due to the use of sand moulds which will leave very little or no traces.

3.3.4 Chronology and Conclusion

The site is important in many ways as it has a close proximity of important resources such as the marine gastropod shells (shallow sea along the coastal areas of Gulf of Kachchh) and the semi precious stones of Saurashtra. The presence of Classical Harappan elements along with Anarta and Saurashtrian ceramics and the location of the site (equal distant from Kachchh, North Gujarat and Saurashtra), shows that the site played a major role in the cultural transaction between Kachchh, Saurashtra and North Gujarat regions during the Chalcolithic times. The most important aspect of the site is that it revealed a stratigraphic context of Anarta, Sorath and Classical Harappan assemblages for the first time reported in Gujarat. So it is important to understand the process of interaction and integration of the above said cultures. In adition to that it also shows a Post Urban Phase of Harappan culture in a well defined stratum.

Excavations revealed three architectural developmental stages, represented as three phases. Phase I is the pre peripheral wall phase and is represented by Harappan pottery, Anarta Pottery, lithic tools, shell objects and plastered floors. During phase II the site seems to have enclosed with in a peripheral wall and also see the development of various industrial crafts like faience, stone bead and shell manufacturing industries etc. Phase III is represented by Sorath Harappan pottery and the function of the fortification wall seems to have come to an end. Phase IV shows post urban features and is confined to the southern part of the mound and is conspicuous with the

absence of any craft and structural activity. The phase I occupation at the site can be compared to the period IA of Surkotada and Stage III/Transition stage between the Early Urban and Urban Stages of Dholavira. Thus a date close to 2450 BC can be assigned to it.

Phase II is noted as the most prosperous period of habitation at the site. In addition to the massive fortification and well built structures, the phase is marked with remarkable increase in the Classical Harappan artifacts. They mainly include the inscribed seals and sealing, etched carnelian beads and agate weights. As far as the pottery is concerned, S profile jars, dishes on stand, beakers, pedestelled vases, black slipped jars etc dominate. The paintings and decorations on ceramics of phase II were comparable with the pottery reported from the Mature/Urban phase of the Harappan culture, especially period IIIA and IIIB at Harappa and indirectly suggest a date of 2400-2100 BC for the particular phase at the site.

Phase III is noted for the dominance of Sorath Harappan assemblage. The artifacts and ceramics recovered from the phase is comparable to Rangpur IIA and IIB, Rojdi A and B and Lothal A. Even though the ceramics retains the classical shapes the absence of new structures indicate the set back in economy of the occupation. Since Rojdi B has a c14 date of ca 2200-1900 B.C. A similar date can be assigned to the Phase III of Bagasra. Phase IV occupation at the site can be comparable to the Rangpur IIC and Rojdi C due to the presence of Post Urban Sorath Harappan features like blunt carinated bowls, dishes with drooping rims and pots/jars with elongated neck and beaded rims. On the basics of the c14 dates of Rojdi C we can suggest a date of 1900-1700BC for the phase IV of Bagasra.

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Chapter 4 : Analysis and Results

This chapter deals with the analysis of the samples selected from different areas of the site Bagasra. Two trenches, Er13 and Eo3, have been selected with the prime aim to evaluate the changes happening in the ceramic assemblage throughout the sites in different periods of occupation. The study was initiated to understand different degree of standardization reflected in the entire ceramic assemblage and to establish the level of specialization in different periods of occupation. It is further extrapolated to understand the entire process of Urbanization in connection with the structural features and other antiquities. Among the two sections of the chapter, the initial one is focusing on the physical method of analysis (typology) and its results. Here, the classification is presented based on the visible parameters like colour, external texture (feel and appearance) and function (shapes). Further, the analysis will move to the attributes level where every minute details are recorded and a data base has been generated by giving importance to the metric data. This has been done to see the

variations and similarities inherent in the attributes and on the entire assemblage. In the second section representative samples based on the typological analysis will be subjected to material science methods of analysis where thin section analysis has been used to see the technological advancement or changes in ceramics, its provenance, reconstruction of the mode of production and distribution.

4.1 Section 1 Typological Analysis

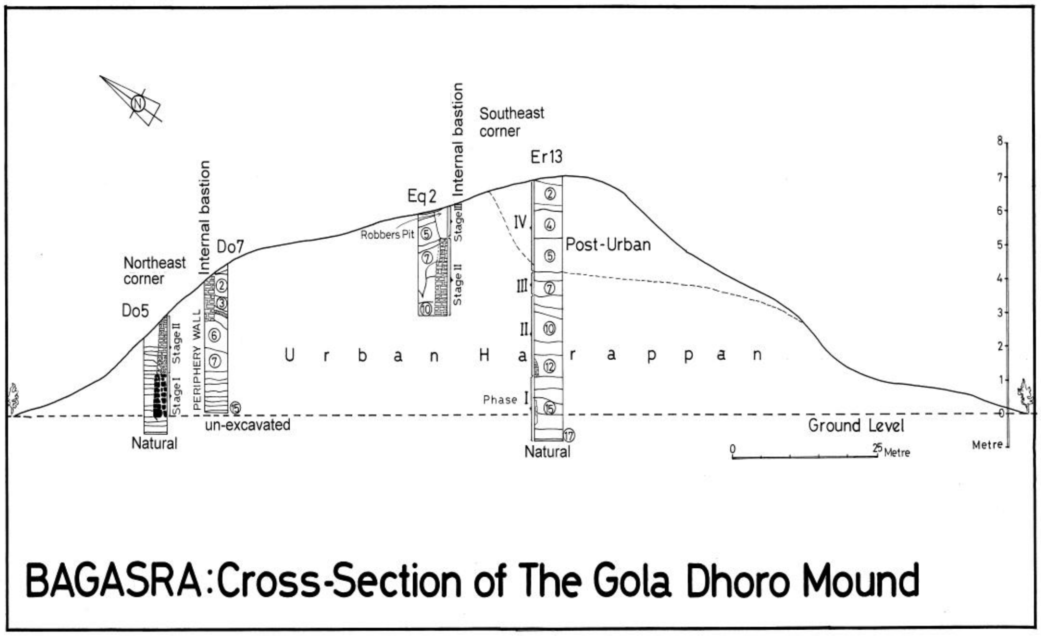
4.1.1 The trench Er13 and the Process of Analysis

Among the trenches taken up for the analysis, Er13 the reference trench is located in the south eastern corner of the fortification and is located almost on the center of the mound (Figure 4.1). The evidence of structural remains present at the trench gives a fair idea about the architectural features of the site in different periods. Among the four phases of cultural occupation, Phase I reveals evidence of mud brick structures attached to the fortification wall having a height of 1.50m and thus it provides the cross section of the wall.

The trenches Er13 and Ew1 were laid out in the highest point of the mound to achieve the complete cultural sequence of the mound and to trace the periphery wall of the settlement towards the south from the north east corner. The excavation revealed that Er13 and Ew1 were just outside the straight alignment of the eastern side of the periphery wall and among the trenches in the row, Er13 touched the natural soil after 7.75m from the surface. The trench yielded a total habitational deposit of 7.75m incorporating 17 layers belonging to four phase of cultural history (Figure 4.2). The presence of a good number of antiquities of all variety justifies the selection of the particular trench for analysis as the comparison of the distribution pattern of the artifacts made it possible an inter and intra site study.The layers 17 to 13 from the bottom upward belongs to the phase I and layers 12-8 belongs to phase II,

layer 7-6 belongs to the phase III and 5 to I represents the IV^th phase of the cultural occupation.

Figure 4.1 Mound Gola Dhoro and Location of the Trench Er13

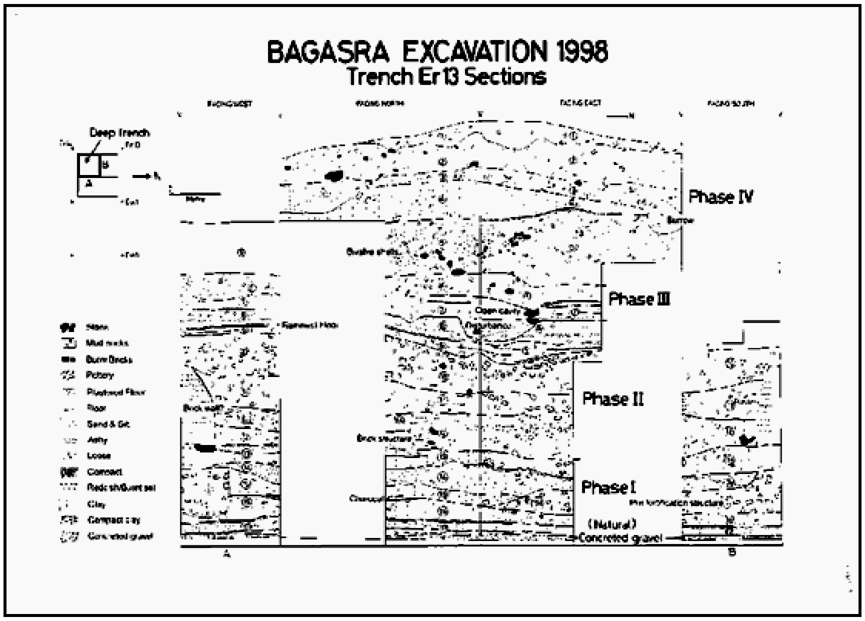


Courtesy Dept of Archaeology and Ancient History MSU

The phase IV occupation of Er13 has a thickness of about 2.85m, is devoid of any structural remains and is composed of mainly ill sorted, loose and ashy material. This was found as an accumulation (debris) outside the fortification wall. Sometimes, the phase four material has spilled over the wall and even in the pits that lies across the periphery wall. The Phase IV deposit is almost devoid of any material indicative of the economic prosperity, except a few copper and comparatively well made potteries. The pottery was made out of fine clay and is well baked. They are decorated with black paintings. The important shapes present in the ceramic assemblage are straight and concave sided bowls with a blunt carination, dishes with drooping rim and jars or pot with globular body slightly elongated and constricted neck and a thick rounded rim. A few sherds of Black and Red Ware bowls and stud handled bowls in Red Ware

with elongated handles were also recovered. These features are comparable to those from Rangpur IIB and C pottery (Rao 1963).

Figure 4.2 Section Drawing of Trench Er13, Showing Different Phases of Occupation



Adapted Sonawane et.al 2003

The 4.25m deposit lying below the above mentioned habitation comprises of three distinct types of pottery, namely the classical Harappan, Anarta (Sonawane et.al. 2003) and a pottery type belonging to local tradition. The layer 8-12 shows the evidence of the beginning of a massive wall construction and craft and industrial activities.

Just below this there is less than 1m deposit comprised of layer six and seven, predominated by the Urban Harappan relics together with bowls and pots comparble to Rangpur IIA and Rojdi-A. The phase I is represented by the layers from 13 to 17 and has a cultural deposit of 1.25m. The phase is marked with the absence of fortification. Few well made floors and dark colored bricks in an alignment were recovered, may be pointing towards the presence of some early structures of the phase. The pottery types of this phase mainly include the ceramics belonging to Anarta Tradition (Sonawane et.al 2003), the local dichromate pottery, and Red Ware with mica concentration. The presence of shell wastes and finished shell bangles,

terracotta cart frames and wheels, triangular terracotta cake and a lapis lazuli bead suggest that the economic basis for the late Urban way of life was already emerged by the end of first phase.

4.1.2 Antiquity

As far as the antiquity record is concerned Trench Er13 can be considered as representative of the site. The antiquity records include almost all materials of both economic and cultural importance. These consist of materials made of semi-precious stones of different variety, shell, terracotta, and pottery, bone implements, metal objects and stone tools. The major objects made out of these materials include beads, bangles, various types of tools and materials of day to day life and amusements. A close look at the distribution pattern of the antiquities in various layers shows a very interesting pattern (Table 4.1) Here, the Phase I occupation revealed a fairly good number of antiquities including shell bangles, shell circlets, terracotta objects and beads of steatite etc. showing that the basic economy was depended or dominated by the products of the aforesaid materials from the very beginning. But in case of Phase II, the percentage of the antiquities recovered from the Trench is high and mainly consist of Mature Urban Harappan like bangles with chevron marks, beads of carnelian and lapis lazuli, triangular terracotta cakes and toy cart frames etc. Phase III has got many of the above mentioned features continuing but the percentage decreased. In case of Phase IV, the materials lost all their charm. Even though shell bangles and a few terracotta/pottery objects are present, the phase does not produce any precious or deluxe antiquities. The Phase IV is marked by the presence of lithic tools and objects like points, blades, hammer and grinding stones, which clearly indicate a change in the economic status. All together, the antiquity record clearly state that Phase II is the most effluent stage of occupation at the site and a fluctuation in the economic status of the people is clearly visible throughout the phases.

Table 4.1 Re-arranged Antiquities Recovered from Trench Er13

Object	**M**	**Type**	**Phase IV**				**Phase III**			**Phase II**					**Phase I**					
Layers			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
Beads																				
Shell		Disc	_	1	_	_	1	_	_	_	_	_	_	_	_	_	_	_	_	2
T.C		Truncated, biconical, tubular	_	1	_		1	_	_	_	_	1	_	_	_	_	_	_	_	3
Faience		Tubular	_	_	_	_	_	_	1	_	_	7	3	_	_	_	_	_	_	11
Lapis Lazuli		Tubular	_	_	_	_	_	_	_	_	_	_	_	_	_	1	_	_		1
Steatite		Micro, small, disc	_	1	_	_	_	_	_	_	_	_	_	39	_	_	_	_	_	40
Shell																				
Bangle Fragment		Chevron, Plain	_	_	_	_	4	1	_	_	_	_	_	_	_	_	_	_	_	5
Circlet			_	1	_	_	1	_	_	_	_	_	_	_	_	_	_	_	1	3
Ring/bead			_	_	_	_	_	1	_	_	_	_	_	_	_	_	_	_	_	1
Bangle piece		chevron	_	2	_	_	_	_	1	_	_	2	1	3	_	_	_	_	1	10
Pendent			_	_	_	_	_	_	_	_	_	_	_	_	_	1	_	_	_	1
Terracotta																				

Bangle Fragment		Circular	_	_	_	_	_	1	_	_	_	_	_	_	_	_	_	_	_	1
T.C Cake		Triangular, Fragment	_	_	_	_	_	_	_	_	_	_	_	_	1	_	_	_	1	2
Toy cart frame		Fragmentary, square	_	_	_	_	_	_	_	_	_	_	3	2	_	_	_	_	_	5
Lithic																				
Point		Retouched, abraded	_	_	_	_	_	1	1	_	_	_	_	_	_	_	_	_	_	2
Debitage	Chert,Jasper		_	3	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	3
Flake	Chert Jasper	Primary, Secondary	_	1	1	_	2	2	_	_	_	_	_	_	_	_	_	_	_	6
Blade	Rohri	Trapiz backed	_	1	_	_	_	_	_	1	_	_	_	_	_	_	_	_	_	2
Scrapper	Chert	End scrapper	_	_	_	_	1	1	_	_	_	_	_	_	_	_	_	_	_	2
Core	Chert	Prismatic, flutted	_	1	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	1
Stone Objects																				
Hammer stone	Quarz	Spherical	1	_	_	_	_	_	_	_	_	_	_	_	_	_-	_	_-	_	1
Rubber stone	Sand Stone		_	1	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	1

Polisher	Sand Stone		_	_	_	_	_	_	_	_	_	_	_	_	_	1	_	_	_	1
Perforated slab	Sand Stone	Fragmentary	_	_	_	_	_	1	_	_	_	_	_	_	_	_	_	_	_	1
Bone																				
Scrapper		Thin blade shaped	_	_	_	_	2	_	_	_	_	_	_	_	_	_	_	_	_	2
Point		broken	_	_	_	_	_	_	_	_	_	1	_	_	_	_	_	_	_	1
Animal figurine		With hyper osteons	_	_	_	_	1	_	_	_	_	_	_	_	_	_	_	_	_	1
Pottery																				
Disc		Hexoganal, circular	_	1	_	_	_	1	1	_	_	_	_	_	_	_	_	_	_	3
Graffiti		Triangular, square, circular	_	5	_	_	2	1	_	_	_	_	_	_	_	_	_	_	_	8
Other Materials																				
Knob	Faience		_	1	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	1
Dentallium shell			_	_	_	_	_	1	_	_	_	1	_	_	_	_	_	_	_	2
Otoliths		**Catfish large**	**1**	**5**	_	_	**2**	**1**	-	-	-	_	**2**	_	_	_	_	_	_	**11**

4.1.3 Ceramic Analysis of Trench Er13 and its Results

As the first step after washing, the samples were documented by giving proper sample numbers. The parameters like layers as well as depth were kept unaltered. The samples were initially classified in to diagnostic (shape can be re assessed) and non diagnostic. After making a note, the non diagnostic shreds were discarded and the diagnostic ones were taken in to consideration. The diagnostic shreds were further classified based on color, texture (fine, medium, coarse etc.) and function (shape). In order to achieve a perfect balance all the visible parameters were recorded in detail and sketches were prepared individually. Munshell color chart, Moh's scale and digital calipers were used to get an accurate record of color, hardness and thickness of the samples respectively. Diameter chart was used to get the rim as well as the base diameters, along with the thickness of the vessels.

4.1.3.1 Ware wise Classification

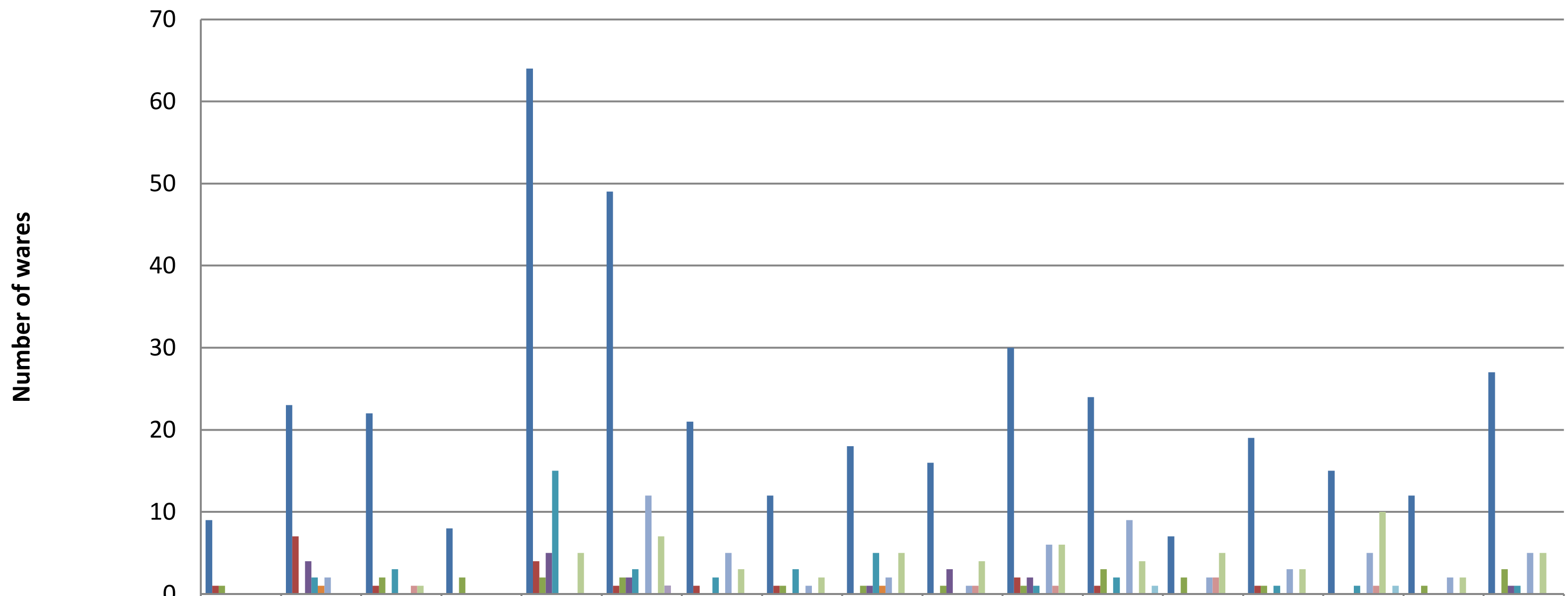
Initially, based on the surface and external textural features a general ware wise classification has been devised (Figure 4.3) which is more or less similar to the excavators' on site classification. Here the physical properties like grittiness, application of slip/wash, burnishing, paintings and other decorative motifs etc forms the major criteria for the classification. This resulted in to a number of groupings like Red Ware, Burnished Red Ware, Gritty Red Ware, Bichrome Ware, Chocolate Slipped Ware Red Ware with Buff Slip, Buff Ware, Buff Ware with Red Slip and Gray Ware. A close look shows that Burnished Red Ware, Gritty Red Ware, Bichrome Ware, Chocolate Slipped Ware and RWBS are the variants of the Red Ware.

So, while considering the external attributes and the minor variations for classifying the assemblage may lead to different grouping of the same category. By keeping this thing in mind an attempt has been made to seek a general classification which

includes the minor variations as well. With this purpose the general wares were clubbed and rearranged by considering both external and internal features. This resulted in to the reduction of the number of Wares present at Bagasra. The reorganized Ware classification produced wares like Red Ware, Buff Ware, Black and red Ware, Red ware with Buff slip, Buff Ware with Red slip. Here the last two wares are part of the Red and Buff Wares only. Hence these sherds look different in colour and composition. More over the high percentage of these Wares is also a reason why it has been considered here as different category. It may be helpful in understanding the technological variations existed within the ceramic production. The objective of the present work is to understand the stages of production of ceramics at Bagasra and the degree of specialization achieved over a period of time as the settlement developed. A comparison of the general and reorganized ware is possible (Layer and Phase wise) from the chart given below. The layer wise distribution of general wares are classified in to eleven major wares (Figure 4.3) namely, The Red Ware, Burnished Red Ware, Buff Ware, Bichrome Ware, Chocolate Sliped Ware, Mica dusted Red Ware, Red Ware with Buff slip, Buff Ware with Red Slip, Gritty Red Ware, Black and Red Ware and Black or Gray Ware. The entire assemblage is dominated by Red Ware followed Buff Ware and Gritty Red Ware. Rests of the wares are very less in percentage. The Phase wise distribution of the general wares (Figure 4.4) shows an increase in the percentage of the ceramics from Phase I to Phase IV.

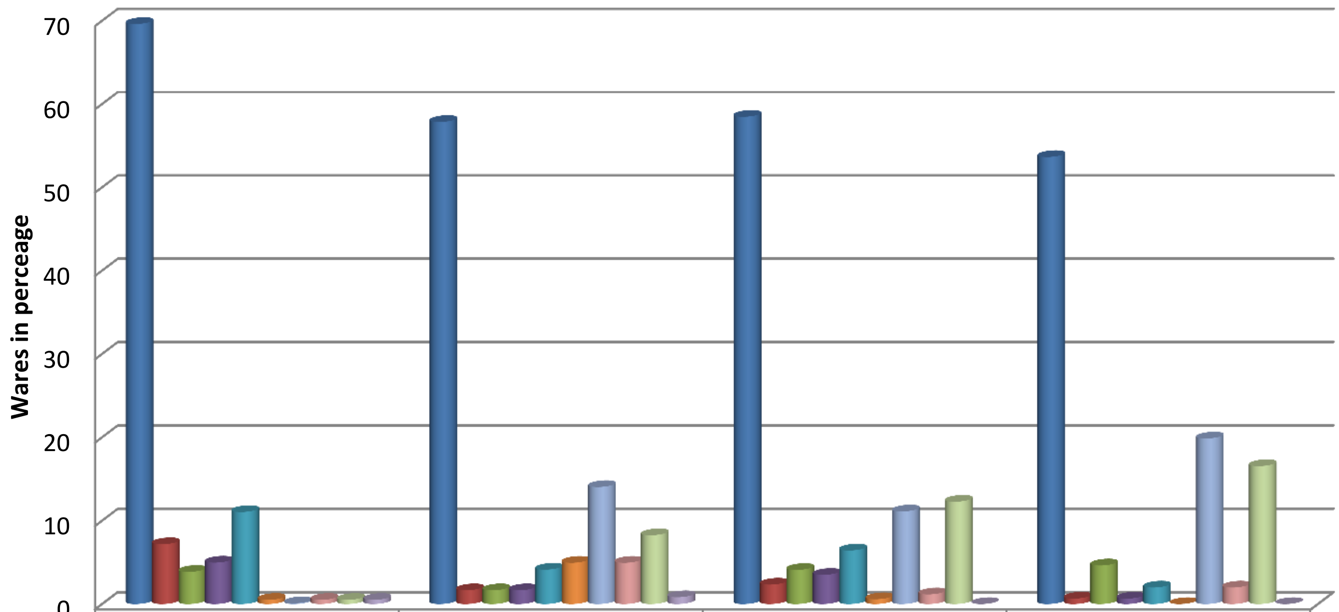
As far as the rearranged ware classification is concerned (Figure 4.5) shows the layer wise distribution of the re arranged Wares. Here, Red Ware (RW) is the most prominent and well made ceramic of the entire assemblage and is present in all the layers. It is available in all textures from very fine to coarse category and includes almost all the shapes present at the trench. More than 98% of the total RW assemblage falls in the category of wheel turned and the clay used is well levigated.

Figure 4.3 Layer wise Distribution of General Wares



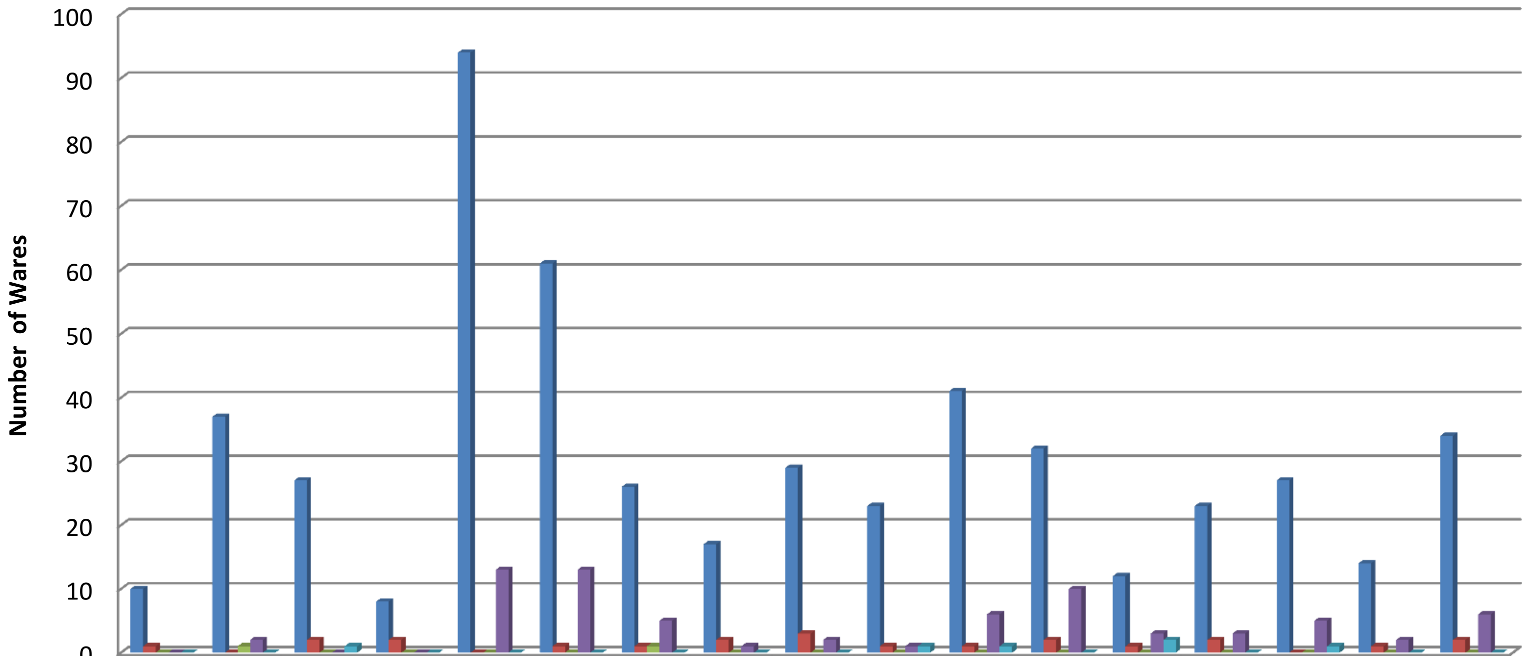
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
RW	9	23	22	8	64	49	21	12	18	16	30	24	7	19	15	12	27
BurnishedRW	1	7	1	0	4	1	1	1	0	0	2	1	0	1	0	0	0
Buf W	1	0	2	2	2	2	0	1	1	1	1	3	2	1	0	1	3
Bichrome	0	4	0	0	5	2	0	0	1	3	2	0	0	0	0	0	1
CSW	0	2	3	0	15	3	2	3	5	0	1	2	0	1	1	0	1
MRW	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
RWBS	0	2	0	0	0	12	5	1	2	1	6	9	2	3	5	2	5
BWRS	0	0	1	0	0	0	0	0	0	1	1	0	2	0	1	0	0
GRW	0	0	1	0	5	7	3	2	5	4	6	4	5	3	10	2	5
BRW	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
black/G W	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0

Figure 4.4 Phase wise Distribution of General Wares



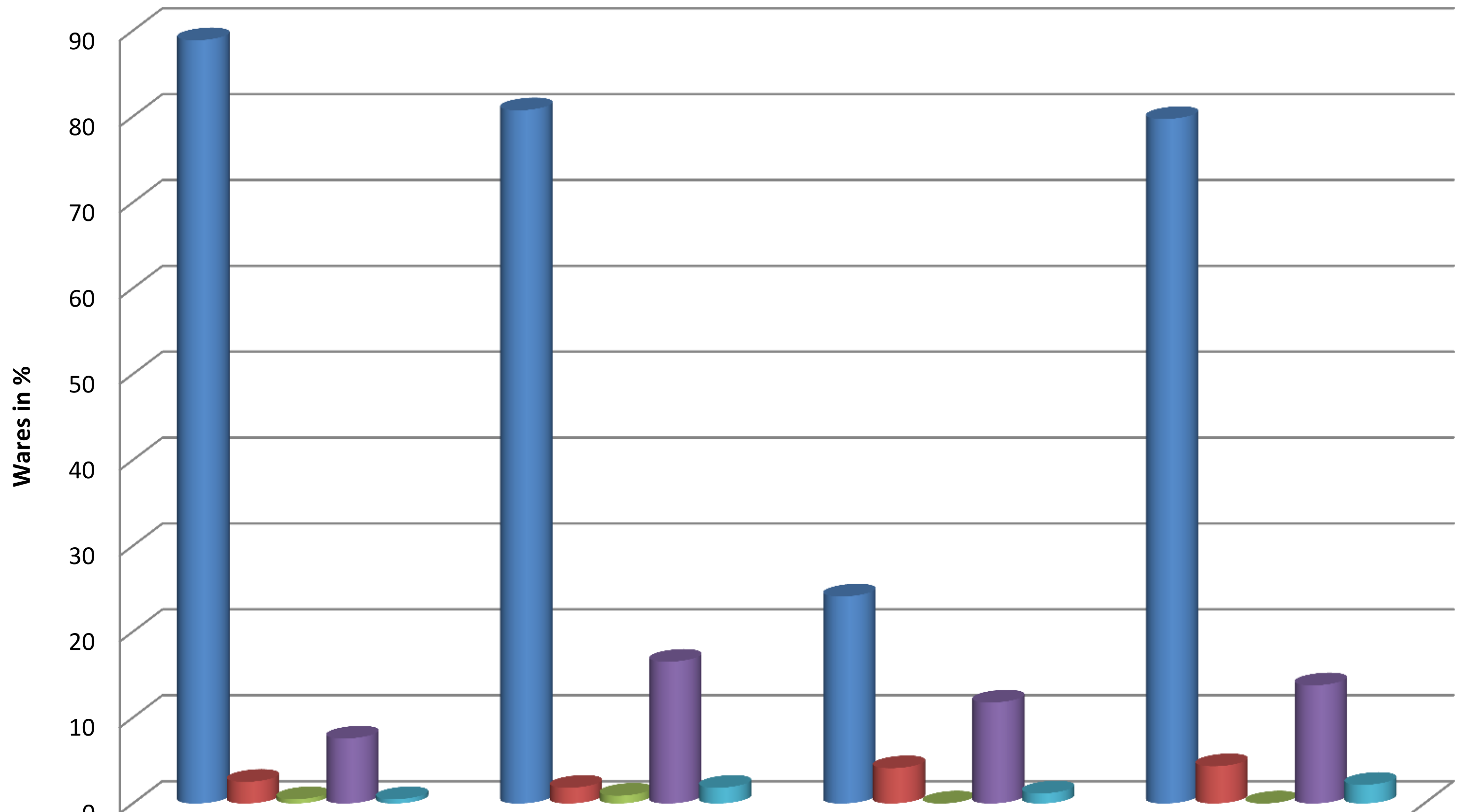
	IV	III	II	I
RW	69.61	57.85	58.47	53.64
BurnishedRW	7.18	1.65	2.33	0.66
Buf W	3.86	1.65	4.09	4.63
Bichrome	4.97	1.65	3.5	0.66
CSW	11.04	4.13	6.43	1.98
MRW	0.5	4.95	0.58	0
RWBS	0.1	14.04	11.11	19.86
BWRS	0.5	4.95	1.16	1.98
GRW	0.5	8.26	12.28	16.55
BRW	0.5	0.82	0	0

Figure 4.5 Layer wise Distribution of Re arranged Wares



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
RW	10	37	27	8	94	61	26	17	29	23	41	32	12	23	27	14	34
Buf W	1	0	2	2	0	1	1	2	3	1	1	2	1	2	0	1	2
BRW	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
RWBS	0	2	0	0	13	13	5	1	2	1	6	10	3	3	5	2	6
BWRS	0	0	1	0	0	0	0	0	0	1	1	0	2	0	1	0	0

Figure 4.6 Phase wise Distribution of Re- arranged Wares



	IV	III	II	I
RW	88.88	80.73	24.11	79.71
Buf W	2.52	1.83	4.11	4.34
BRW	0.5	0.91	0	0
RWBS	7.57	16.51	11.76	13.76
BWRS	0.5	1.83	1.17	2.17

The tempering material mainly includes sand, ash and vegetable or any other organic fibers and they may change from shapes to shape. This is the same with the phase wise distribution (Figure 4.6) as well. The Moh's Scale records a hardness of <3 to <5 for the assemblage. As far as the surface treatment is concerned, more than 80% of the RW retains true slip on the exterior and self slip/wash on the interior irrespective of the shapes. The color of the slip varies and falls in different tones of red and cream color (Munsell range). The distribution of ware at different phases shows an increase in the total production of the wares from Phase I to Phase II and a decrease in Phase III. The ceramic variety increased at Phase IV as well. Red Ware occupies a high proportion with distinct characters irrespective of the fluctuations in its quantity. This shows the general acceptance of the ware throughout the period of cultural occupation at the site.

Red Ware with Buff Slip (RWBS) is the second major ware of the category as it comprises of 4 to 5 % of the total assemblage (Figure 4.6). It is present in the ceramic assemblage from the very first phase of cultural occupation and its quantity remains consistent throughout the phases. This clearly indicates the inseparable role of the ware at the site. A slight increase in the percentage of the ware is noticeable at Phase III. They are wheel turned and very fine to fine in texture. It has a hardness ranging from <3 to <4 in Mohs scale. The major shapes present include pots, dishes and basins. They are treated either with slip or wash and have a very smooth feel of the surface, may be due to the careful application of the surface treatment. Paintings are very rare. Sometimes application of cream to chocolate color produces a bi-chrome effect. Its clay is fine and is well levigated. Silt to very fine sand can be seen on the section in the form of inclusions. Usage of vegetable fiber in the form of post burning impression is also observable. The core is fully oxidized and the firing is adequate. It is observed that, in this category of ceramics the color of the slip vary from one to another, however, retains its fine to very fine texture.

Buff Ware (BW) falls as third abundant ware in the assemblage. Normally, they have a very fine to fine fabric. The core is fully oxidized and very fine to fine sand is visible on the section in the form of inclusions. The presence of the pores indicates the usage of organic fiber. The clay is well levigated and vessels are fast wheel turned. The shapes vary from dishes to small basins. The surface is treated with slip on the exterior and has a self slip on the interior. The paintings are very rare. The applications of the slips of different color at regular intervals some times produce a bichrome effect. Incised decorations are present mainly on dishes and some times on the shoulder of the basins and pots. The ware is equally distributed except at layer 2 and 5. The phase wise distribution of the wares shows a steady distribution except at phase III.

Buff Ware with Red Slip (BWRS) is the fourth abundant ware in the assemblage. They are very fine to fine in fabric. Its clay is well levigated and the vessels are wheel turned. The core is fully oxidized Most of the cases they retain a wash or very light red slip that produce a bichrome effect. The hardness of the vessels vary from <2 to <3. The major shapes present in this category include dishes and shallow basins. No characteristic decoration is found on the surface except in case of dishes.

The last category of ware reported from the assemblage is the Black and Red Ware (BRW). The total percentage is less than 2. BRW is confined to layer 2 and 7 of phase I of the cultural occupation at the site. They are medium to medium coarse in texture. Bowls and pots are the shapes reported in the category. They are wheel turned and inadequately fired. They have a very thick red slip on the exterior and are burnished as well. The number of shreds falling in this category is so small so that it is less dominant in the phase wise distribution of the entire assemblage. Since it is different in fabric, texture and the occurrence and confined to a single shape it could

be assumed that BRW is not locally produced at the site and could have come to the site through trade or external contacts.

A notable change in rearranged Wares in comparison with general Wares is the reduction in the number of major Wares. It also helped in understand the distribution of the same. The analysis revealed that Red Ware is the most prominent Ware at Bagasra, which is followed by Buff Ware. The other two major wares present are the variants of Red Ware (RWBS) and Buff Ware (BWRS).

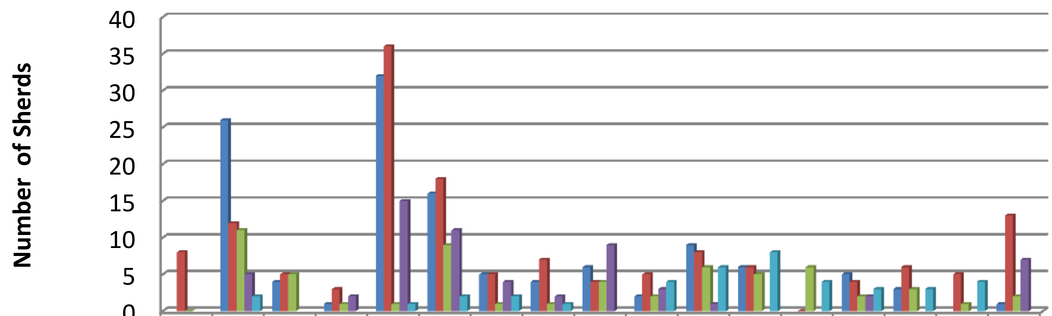
4.1.3.2 Texture wise Classification

Here, the samples were further classified in to different textural groups based on the external textural features. The major divisions include, very fine, fine, medium and medium coarse.

As far as the very fine fabric is concerned they have a smooth, very well refined and processed clay paste, free of inclusion and is well fired with uniformly colored core and margins (grey, red or buff) Fine fabrics are noted with fine clay and well levigated clay paste. The feel ranges between compact to softy/powdery/sandy. It is uniformly fired and most of the time retains a fully oxidized core. In case of medium fabric, it has a fine sandy to medium clay paste. There are comparatively more degraisant visible in the core than in the fine fabric, but the degraisant are still small in size with the rare occurrence of bigger inclusions. The feel is harsh. The clay is well refined. It may be well to medium fired with the core evenly colored or gray with lighter margins. In medium coarse fabric is a fabric in which the clay paste is sandy and inclusions are many. The size of the inclusions is also larger and occurs at frequent intervals. The clay paste is probably tempered and feel of the fabric is rough. Coarse fabrics are significantly coarser, being very sandy and containing abundant and large degraisant that occur at close intervals. The feel is very rough and gritty. The vessels

are medium to ill fired, sometimes brittle with the cores often being un-oxidized dark gray or black to red in color.

Figure 4.7 Layer wise Textural Distribution of Red Wares from Er13

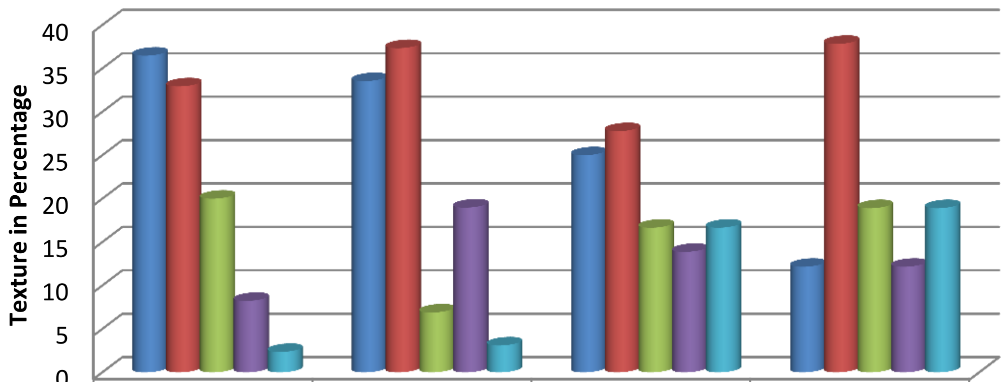


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
V.Fine		26	4	1	32	16	5	4	6	2	9	6		5	3		1
Fine	8	12	5	3	36	18	5	7	4	5	8	6	0	4	6	5	13
Medium	0	11	5	1	1	9	1	1	4	2	6	5	6	2	3	1	2
M.Coarse		5		2	15	11	4	2	9	3	1			2			7
Coarse		2			1	2	2	1		4	6	8	4	3	3	4	

The textural distribution of Red Ware at Er13 shows a very interesting character. The layer wise distribution of external texture from Er13 (Figure 4.7) shows that Very fine to fine fabric is the most dominant category present in all the layers. In the initial layers the medium to coarse fabric was dominant while towards the end of the occupation the finer wars started dominating the entire assemblage. The Red Ware is mostly available in very fine to fine textures irrespective of shape and phases. Medium, medium coarse and coarse are the other textural forms available in Red Ware. All these textures are present throughout the phases. But a close observation in the percentage of the above texture reveals a different aspect (Figure 4.8). Here at Phase I, the textural distribution is more or less equal and can be considered as fine to medium textures. In case of Phase II a slight increase in the percentage of very fine fabric can be seen but altogether shows a steady progress and falls in the category of fine to medium fabric. In case of phase III and IV a decrease in the total percentage of

coarse, medium textures and an increase in very fine to fine textures are observable (Figure 4.8). Here phase III and IV can be considered as very fine to fine textured. The textural differences happening in Red Ware at different phases indicate the technological changes happening at the site.

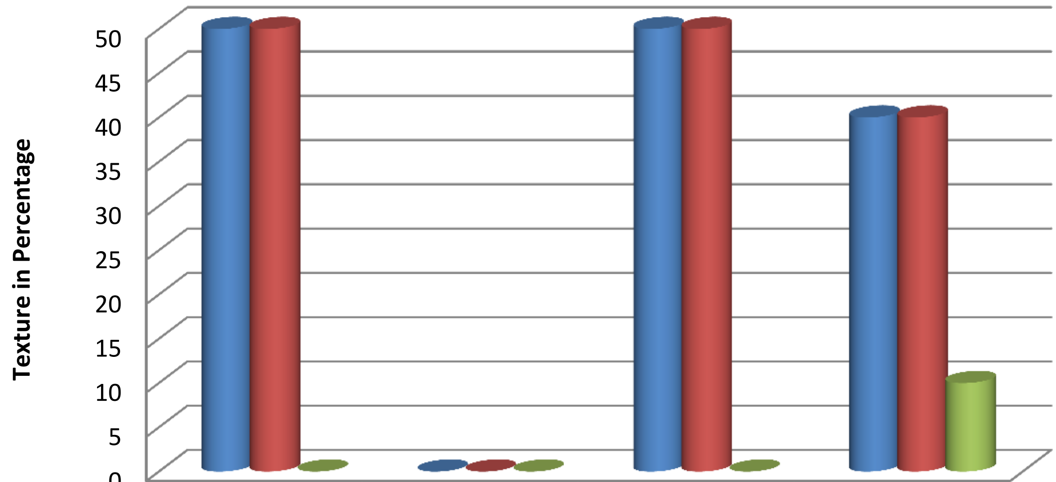
Figure 4.8 Phase wise Textural Distribution of Red Wares from Er13



	Phase IV	PhaseIII	Phase II	Phase I
V.Fine	36.47	33.54	25	12.16
Fine	32.94	37.34	27.77	37.83
Medium	20	6.9	16.66	18.91
M.Coarse	8.23	18.98	13.88	12.16
Coarse	2.35	3.1	16.66	18.91

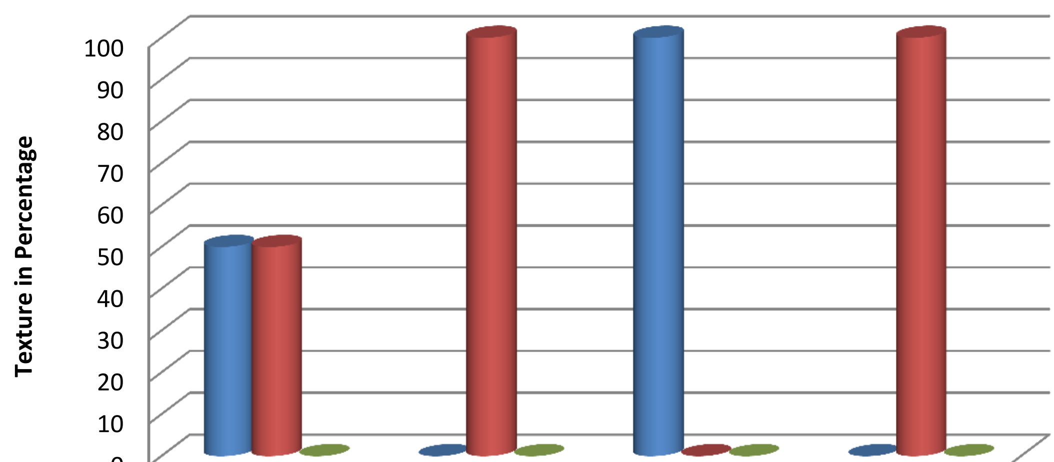
Here, Buff Ware and Buff Ware with Red slip (BWRS) has been treated together as they are the variant of the same and shows a similar sort of distribution. In both the cases the samples falls either very fine, fine or very fine to fine category. In case of Buff Ware, it exclusively fall in the category of very fine to fine fabric and is very much consistant through out the Phases (Figure 4.9). More or less a similar pattern of distribution can be seen on BWRS. Here, the histogram (Figure 4.10) shows that phase I and III is exclusively dominated by very fine fabric while Phase II is charecterised by fine Wares. In case of Phase IV, it is represented with very fine to fine fabric. How ever, both the wares fall in the category of very fine to fine fabric only and does not show any sort of variation by time.

Figure 4.9 Phase wise External Textural Distribution of Buff Ware from Er13



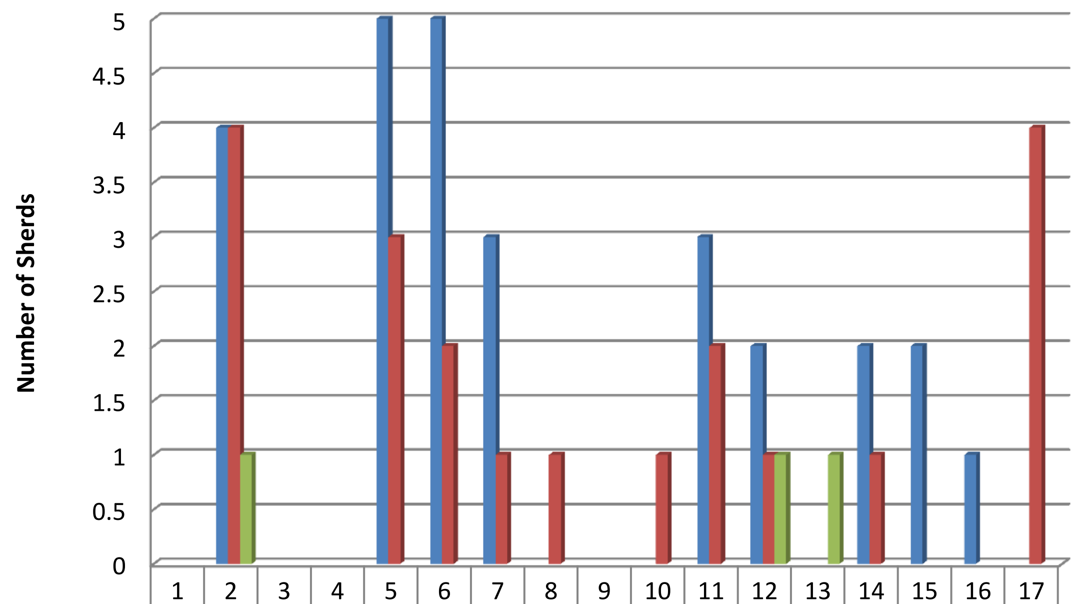
	Phase IV	PhaseIII	Phase II	Phase I
V.Fine	50	0	50	40
Fine	50	0	50	40
Medium	0	0	0	10

Figure 4.10 Phase wise External Textural Distribution of Buff Ware with Red Slip from Er13



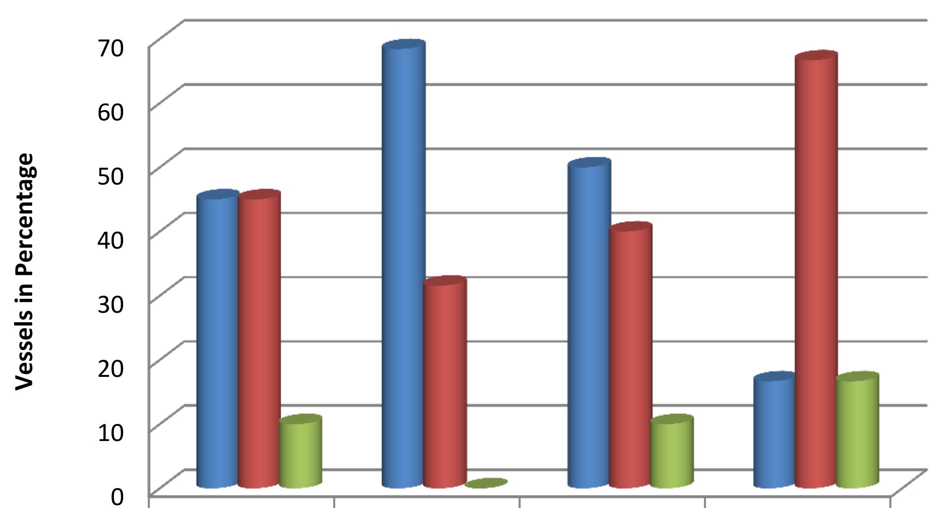
	Phase IV	PhaseIII	Phase II	Phase I
V.Fine	50	0	100	0
Fine	50	100	0	100
Medium	0	0	0	0

Figure 4.11 Layer wise External Textural Distribution of RWBS from Er13



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
V. Fine		4			5	5	3				3	2		2	2	1	
Fine		4			3	2	1	1		1	2	1		1			4
Medium		1										1	1				

Figure 4.12 Phase wise External Textural Distribution of RWBS from Er13



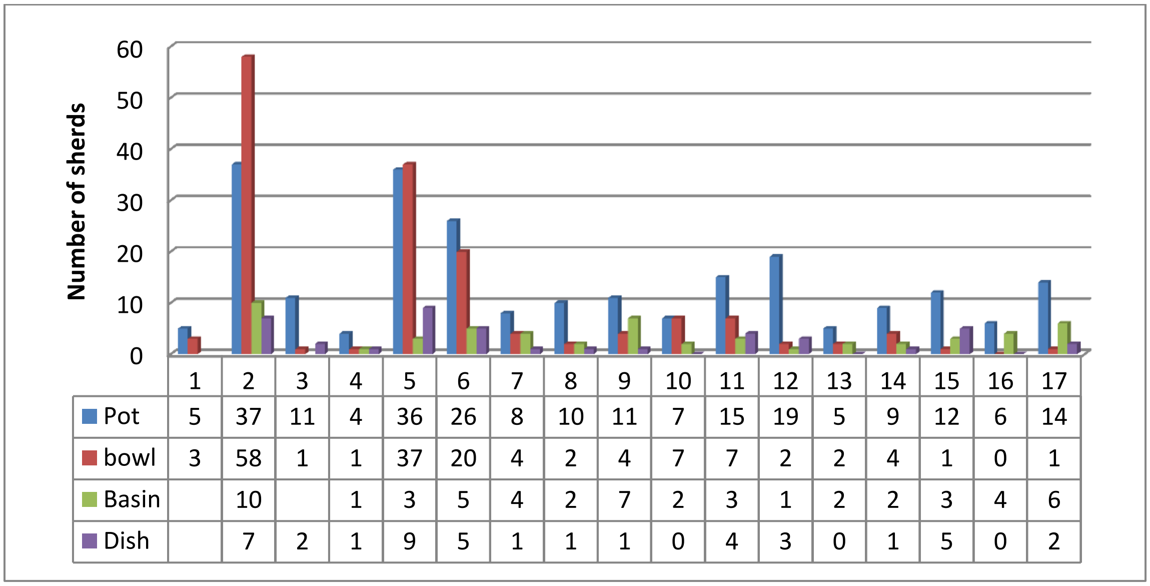
	Phase IV	PhaseIII	Phase II	Phase I
V.Fine	45	68.42	50	16.66
Fine	45	31.57	40	66.66
Medium	10	0	10	16.66

The layer wise textural distribution of Red Ware with Buff Slip (Figure 4.11) shows how different it is from that of parent Red Ware. The texture falls in the category of very fine to medium fabric. It has a different textural distribution from that of Red Ware. Here altogethet it has a very fine to fine fabric. The histogram shows that the percentage of medium fabric is below 15% and even absent in Phase III (Figure 4.12). In general the very fine wares are dominated in the first two phases along with fine and medium wares. In the third and fourth phase, the fine wares remain as dominant but the quantity of the very fine ware decreases. It is observable that the quantity of medium and coarse wares remain constant with minor fluctuations in quality. As far as the distribution of the shapes of varying texture is concerned pots are the most dominant shapes. Basins are present from fine to medium fabric and bowls can be seen in the fabrics of very fine, fine and medium. Rest of the vessels fall with in the range of fine to medium. As far as the medium coarse to coarse fabric is concerned they are dominated by the pots, cooking vessels like handis and a few bowls.

4.1.3.3 Shape wise Classification

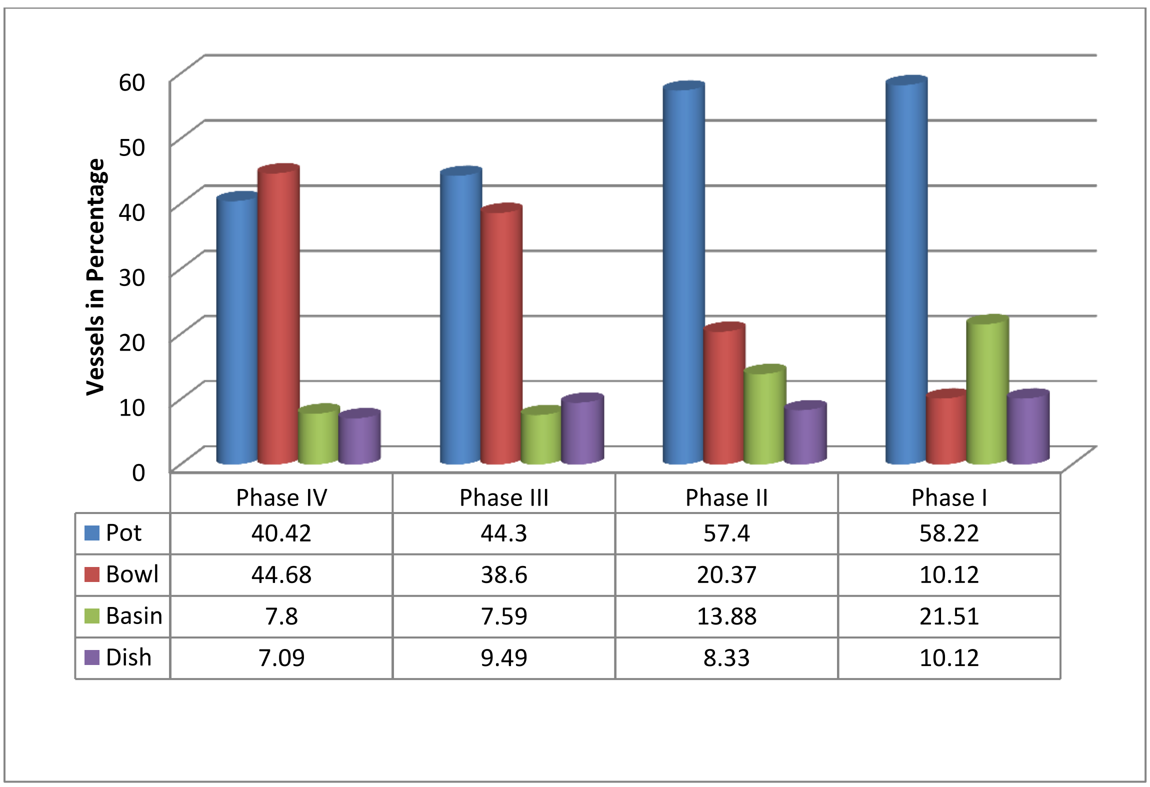
Like in the case of texture, a classification has been devised based on major shapes present in different wares and tried to understand its functional relationship. The following histogram (Figure 4.13) shows the layer wise distribution of different vessels in Red Ware from Er13. Here, pots, bowls, basins and dishes are the major shapes present. The shapes may vary in its percentage but remains present in all the four phases of occupation. Among the shapes, pot/jar are the most prominent and commonest. It represent above 50% of the total assemblage. Bowls are the second dominant shape present and are represented with above 30% of the total assemblage. Basins and Dishes are the two other shapes present consist of less than 20% of the total assemblage.

Figure 4.13 Layer wise Distribution of Red Wares Vessels at Er13



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Pot	5	37	11	4	36	26	8	10	11	7	15	19	5	9	12	6	14
bowl	3	58	1	1	37	20	4	2	4	7	7	2	2	4	1	0	1
Basin		10		1	3	5	4	2	7	2	3	1	2	2	3	4	6
Dish		7	2	1	9	5	1	1	1	0	4	3	0	1	5	0	2

Figure 4.14 Phase wise Distribution of Red Ware Vessels at Er13



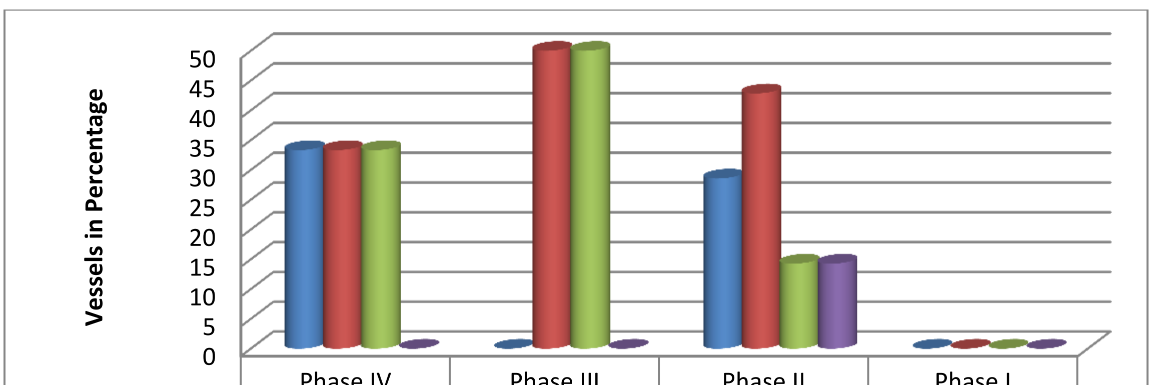
	Phase IV	Phase III	Phase II	Phase I
Pot	40.42	44.3	57.4	58.22
Bowl	44.68	38.6	20.37	10.12
Basin	7.8	7.59	13.88	21.51
Dish	7.09	9.49	8.33	10.12

A close observation shows that there existed some relationship between these shapes at different phases. In case of pots it is represented at its maximum at phase I (58%)

and gradually decreases and stops at 40% at phase IV. A similar sort of behavior is also shown by RW Basins (Figure 4.14). The basins has the maximum representation at phase I (>20%) and has the lowest at phase IV (<8%). In case of dishes it has its maximum in phase I (<10%) and minimum in Phase IV (7.09%). While in case of bowls it has an inverse relationship with pots and basins. Here, the representation of bowls at Phase I is less than 10% and gradually increases its percentage by phase II and III and reaches its maximum of >45% at Phase IV (Figure 4.14). It shows a changing preference of bowls over other shapes through time at the site.

The phase wise distribution of major shapes in Buff Ware is shown in the histogram given below (Figure 4.15). Here, the major shapes present in Buff Ware are bowls, basins, pots and dishes. No diagnostic shred of Buff Ware has come across in the analysis of phase I ceramics. It can be explained as the less number of total assemblages of Buff Ware at the site. Bowls are the most dominant shape followed by pots, Basins and dishes at Phase II. In case of Phase III, bowls and basins are the only two shapes present, while in case of Phase IV bowls and basins were supported by pots in equal percentage.

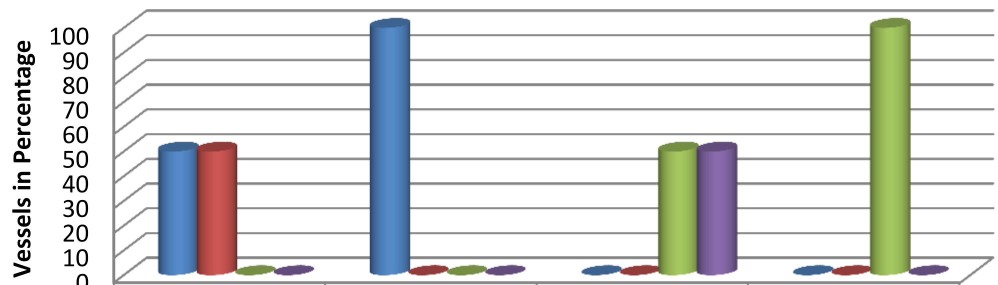
Figure 4.15 Phase wise Distribution of Buff Ware Vessels from Er13



	Phase IV	Phase III	Phase II	Phase I
Pot	33.33	0	28.57	0
Bowl	33.33	50	42.85	0
Basin	33.33	50	14.28	0
Dish	0	0	14.28	0

In case of BWRS the major shapes present are the pots, basins, dishes and bowls. Basins are the most dominant shape present in Phase I and II while, pots are dominating in phase III and IV (Figure 4.16). Dishes are only present in Phase II. Pots are present in Phase III and IV while absent in Phase I and II. Vice versa basins are present in Phase I and II and absent in Phase III and IV.

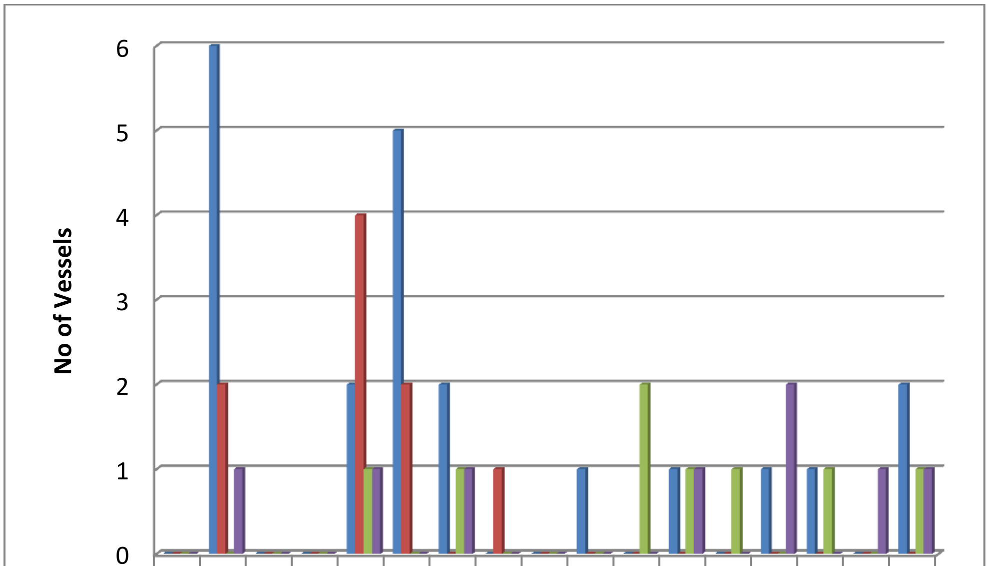
Figure 4.16 Phase wise Distribution of Buff Ware with Red Slip Vessels from Er13



	Phase IV	Phase III	Phase II	Phase I
Pot	50	100	0	0
Bowl	50	0	0	0
Basin	0	0	50	100
Dish	0	0	50	0

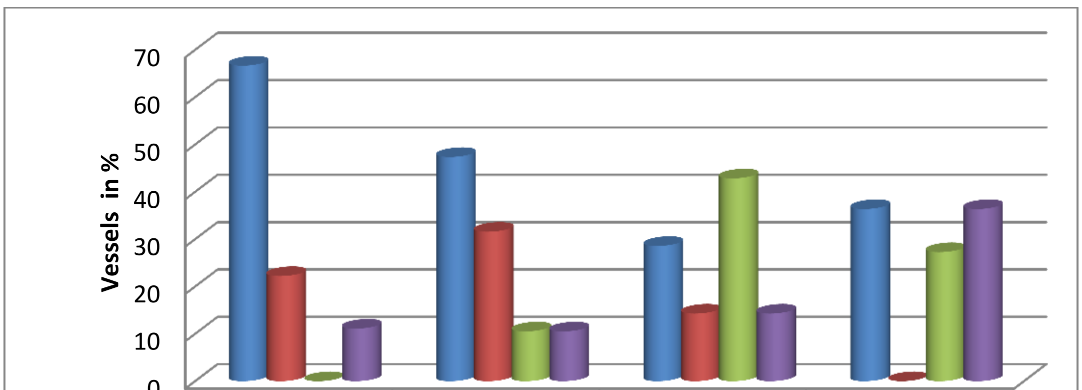
In case of RWBS pots are the most dominant shape which is followed by basins, dishes and bowls (Figure 4.17). Pots have the maximum representation at Phase IV (66%) and decrease gradually and reach its minimum at Phase I (36%) (Figure 4.18). Bowls also have a similar sort of distribution where it touches its maximum at phase III (>30%) and a minimum at Phase I (<1%). Basins and dishes are similar in their distribution and are inverse in relations to pots and bowls .The basins are absent in Phase IV and a maximum at phase II (>42%). Dishes also have the minimum at phase IV (10%) and a maximum at Phase I (36%). Here from the histogram (Figure 4.18) it is clear that pots and bowls has an increase in percentage from phase I to IV, while basin and dishes has a decrease in percentage from Phase I to IV.

Figure 4.17 Layer wise Distribution of Red Ware with Buff Slip Vessels from Er13



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Pot	0	6	0	0	2	5	2	0	0	1	0	1	0	1	1	0	2
bowl	0	2	0	0	4	2	0	1	0	0	0	0	0	0	0	0	0
Basin	0	0	0	0	1	0	1	0	0	0	2	1	1	0	1	0	1
Dish	0	1	0	0	1	0	1	0	0	0	0	1	0	2	0	1	1

Figure 4.18 Phase wise Distribution of Red Ware with Buff Slip Vessels from Er13



	Phase IV	Phase III	Phase II	Phase I
Pot	66.66	47.36	28.57	36.36
Bowl	22.22	31.57	14.28	0
Basin	0	10.52	42.85	27.27
Dish	11.11	10.52	14.28	36.36

As far as the functional division is concerned the pot or jar is the most dominating shape in all the four phases followed by bowls, dishes, basins and dish on stand. It is

found that certain shapes are absent in Phase I like basins, goblets, beakers etc. but present in phase II. Though, there is high quantity of pottery in phase III and IV, many of them are inferior in quality. The majority of the ceramics were fall in to the category of pots, bowls, basins and dishes. When compared to the previous phases the quantity of ceramics were high. The increase in the percentage of ceramics and reduction of the table wares indicate a change in the general economy.

4.1.4 Trench Eo3 and the Process of Analysis

In order to see the variation existed within the range of ceramic assemblage, large numbers of samples were analyzed. Moreover, increased number of samples may help to raise the scope of the study in to an inter site level. Further, it can be extended to see its relations with other contemporary surrounding sites with the same cultural menu. It is essential in many ways as it helps to analyse the changes in the assemblage both inside and outside the fortification and the major differences occurred in the typological and technological aspects. Thus, it may be possible to see the socio cultural and economic separation or specialization existed within the site.

The trench Eo3 was taken up for excavation to trace the southward extension of the mud brick structures of Phase III and IV. Similar sort of structures were also recovered from the trenches of Eo2 and Eo6. The excavation revealed a habitation deposit of 2.60m consisting of four phases of Harappan occupation. Among the 10 layers exposed, layer 1 and 2 belong to Phase IV or the Post-Harappan occupation at the site. The thickness of the phase varies from 10 to 20cm inside the trench and consists of a number of pits, which is the characteristic of the Post Harappan occupation at the site. As far as the structural features of the phase are concerned, a stone wall with a thickness of 48cm is observable in a straight alignment. Layer 3 and 4 belong to Phase III. Even though these layers are loose in nature, these are devoid of any phase IV or Rangpur IIC materials. In addition to the Classical Harappan pottery,

a pre-dominance of Sorath Harappan pottery can be observed in the phase. Layer 5, 6, and 7 represent the phase II occupation, which is noted by the presence of mud brick structures built over the stone base/ foundation. Here, layer 5 is hard and compact, in nature and is devoid of artifacts and therefore appears to be a sterile layer. In fact actual habitation deposits can be observed in the sub layers of 5a, 5b, 5c, 5d and 5e, which is deposited over and against the structures of this phase. The layer 6 on the other hand is primarily an accumulation of disintegrated mud bricks over the collapsed structures. Layer 7 represents regular habitation deposit associated with structures of the phase. Pottery is predominately Classical Harappan. The major shapes include S-shaped jar, perforated jar, beakers, dishes, dish on stand with incised decorations, large basins and sherds of black slipped jars. In addition to these a number of faience and semi precious stone beads, shell bangles, terracotta triangular cake, toy cart frames and wheels etc. were also recovered. Parts of a toy animal figurine whose head and body portion are attachable to each other were recovered from this area. The animal figurine shows a few characteristic features of bovid. Pottery belonging to Anarta Tradition is represented in this phase.

Phase I is represented by the layers of 8, 9, 10 and 11. Among these layer 11 is a light brownish clay deposit. It incorporates bits and pieces of pottery, mostly non diagnostic, tiny bits of charcoal and bone fragments. The basal part of this deposit, layer 12 is relatively dark and very sticky and is found resting on the natural sediments composed of yellowish brown kankary gravel. Layer 12 also revealed some flake tools made of local chert and jasper. Technologically and morphologically these tools are similar to those of Middle Paleolithic period. Many of these flakes and cores are abraded and have smooth sub rounded angles. The brief survey carried out in the surrounding fields, rain gullies and drainage channels indicated the presence of quite a few Middle Paleolithic flake tools in the gravel as well as in the black soil. It is therefore obvious that the area was frequented by the Middle Paleolithic hunter-

gatherers. The habitation layers of phase I incorporate remains of mud brick structures too. The bricks used in this early stage are dark colored and of better quality than those used in phase II, even though the bricks have a ratio of 1:2:4 of the Harappans. These early structures do not have a stone foundation. The pottery recovered from this phase includes all the Classical Harappan vessel types. Besides this there is a predominance of Anarta type pottery represented by incurved bowls, and large basins of Gritty Red Ware and small pot/jar of Burnished Gray Ware. Similarly the number of Bichrome painted local pottery is also much larger in this phase. Other antiquities recovered from this phase include beads of agate, faience and steatite, copper wires and points, shell bangles and lithic blades of Rohri chert and locally available agate and chert.

The structures belonging to all the four phases were excavated from the trench, even though they are flimsy and badly damaged in phase III and IV. The phase IV structure is represented by the remains of a flimsy rubble stone wall associated with Rangpur IIC pottery vessels and a quern and pestle stone. This structure belongs to layer 2. Below this structure remains of a floor with pots buried underneath was excavated. Probably due to the use of poor quality bricks, the walls of the structure of phase III has completely disintegrated and spread out. The structures of Phase II and I are much better preserved than that of the later period. In fact phase II structures are found built over the remains of the earlier structures using them as foundation. The phase II structures invariably have a stone base followed by a mud brick on top. The walls of these structures are 68 to 70 cm in thick. One of these has at least three vertical courses of reddish yellow and light gray mud bricks. Remains of a clay plastered bin base were also found in association with the above structure/ chamber (Sonawane et.al. 2003).There are two distinct types of structures in phase I. They are the mud brick structures and rubble- stone and mud packed structures. The first category structures are built of dark gray mud bricks with the standard ratio of 1:2:4

and white colored clay is used as mortar and is plastered. The homogeneous look in the color and compactness remembers the enriched tradition of Harappan architectural practices. The plan and lay out of the structures of this Phase are more or less similar to Phase II. This is primarily due to the use of the strong wall of the earlier structures as the foundation for subsequent construction. Though, the basic lay out remained same, there are instances of dislocation and unconformity in the division and management of space between the two phases.

The second type of structural remains unearthed has a totally different quality. They are made up of single course of cobbles and rubbles set in sticky mud, topped by packed mud up to a height of 40cm. The structure is associated with a number of Red Ware bowls, basins and pots of the Anarta tradition. The basal part of the above said structure is found to be resting on a pack of large shreds of the Classical Harappan dishes, dish on stand, basins and several rim shreds of the Black Slipped Jar. From this it is very evident that the structure is contemporary to the adjacent mud brick structure and does not have a stratigraphic precedence.

4.1.5 Antiquity

There is no characteristic change observable in the record of antiquity at trench Eo3 in comparison with Er13. Among the antiquities recovered, beads of a variety of materials including shell, terracotta, faience, Lapis lazuli and other locally available chert, agate, blood stones deserve special mention. With in the category, faience and steatite beads are the most prominent. As far as the distribution is concerned, Phase I is more or less devoid of beads. Phase II and III have a fairly good amount of beads of all variety, while phase IV (Table 4.2) shows a decrease in the percentage of beads and other antiquities. As far as the shell objects are concerned bangles (with chevron mark and plain) dominates the assemblage. Other objects include shell circulates, inlays and ladles. Shell objects are the most abundant materials present both

Table 4.2 Re-arranged Antiquities Recovered from Trench Eo3

Object	**M**	**Type**	**Phase IV**		**Phase III**		**Phase II**		**Phase I**				**_**		**_**
Layer	**_**	**_**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Beads	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
	Shell	Tubular, barrel	_	6	2	_	5	_	_	_	_	_	_	_	13
_	Terracotta	Cylindrical, tubular	_	3	4	_	1	_	_	_	_	_	_	_	8
_	Faience	Tubular,small disc and micro	_	17	44	17	35	2	3	3	_	_	_	_	121
_	Lapis Lazuli	Tubular	_	1	1	_	_	_	_	_	_	_	_	_	2
_	Steatite	Micro,disc,tubular,short cylindrical	_	16	28	7	6	6	4	5	2	2	_	_	76
_	Chert	Tubular	_	6	_	_	_	_	_	_	_	_	_	_	6
_	Carnelian	Short barell	_	_	1	_	_	_	1	_	_	_	_	_	2
_	Amazonite	Short truncated	_	_	1	_	_	_	_	_	_	_	_	_	1
Shell	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Bangle Fragment	_	Chevron, plain	1	13	8	13	16	2	3	9	2	1	_	_	68
Circlet	_	Plain, grained	_	_	4	_	1	1	_	_	_	_	_	_	6

Inlay	_	Grained	_	1	_	_	_	_	_	_	_	_	_	_	1
Ladle	_	Broken	_	1	_	_	_	_	_	_	_	_	_	_	1
Terracotta Objects	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Hubbed wheel	_	Circular	_	1	1	_	1	_	_	_	_	_	_	_	3
T.C Cake	_	Triangular, fragmentary	_	_	5	1	_	_	_	_	_	_	_	_	6
Toy cart frame	_	Fragmentary, square	_	_	1	_	_	_	_	_	_	_	_	_	1
Bull head	_	_	_	_	_	_	_	_	1	_	_	_	_	_	1
T.C disk	_	Round, polished	_	1	_	_	_	_	_	1	_	_	_	_	2
Spout	_	_	_	_	_	_	_	_	1	_	_	_	_	_	1
Weight	_	_	_	_	1	_	_	_	_	_	_	_	_	_	1
Lithic	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Point	Agate	Retouched, abraded	_	_	_	_	_	_	_	_	_	_	1	_	1
_	Agate	Broken	_	_	_	_	_	_	_	_	_	_	1	_	1
Debitage	Agate	Waste	_	_	_	1	1	_	_	_	_	_	_	_	2

Lithic Debitage	Chert	_	_	5	6	1	3	1	_	2	_	_	1	_	19
Flake	Amazonite	Primary,	_	_	1	_	_	_	_	_	_	_	_	_	1
	Chert	_	1	1	_	_	_	_	_	_	_	_	_	_	2
Blade	Rohri Chert	Long, re touched	_	4	_	_	1	_	1	_	1	_	_	_	7
_	Chert	Backed, crested ridge blade	_	1	5	2	1	1	_	1	_	1	_	_	12
_	Agate	Re touched	_	_	_	_	_	_	_	1	_	_	_	_	1
Blade blank	Chert	_	_	_	_	1	_	_	_	_	1	_	_	_	2
Scrapper	Agate	With re touches	_	_	_	_	_	_	_	_	_	_	1	_	1
_	Chert	_	_	_	_	_	_	_	_	1	_	_	_	_	1
Core	Quartzite	Tubular	_	_	1	_	_	_	_	_	_	_	_	_	1
_	Chert	_	_	_	_	_	1	_	1	_	1	_	_	_	3
Stone Objects	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Grinding Stone	Sand stone	Square	_	5	1	_	2	_	_	1	_	_	_	_	9

Hammer Stone	Sand stone	Spherical	_	_	2	_	_	_	_	_	_	_	_	_	2
Polishing Stone	Sand stone	Fragmentary	_	_	1	_	_	_	_	_	_	_	_	_	1
Quern	Sand stone	_	_	1	_	_	_	_	_	_	_	_	_	_	1
Ball	Sand stone	Spherical	_	_	1	_	_	_	_	_	_	_	_	_	1
Bangle	Steatite	Broken piece	_	_	_	_	1	_	1	_	_	_	_	_	2
Copper Objects	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bangle	_	Corroded, broken	_	_	1	_	_	_	1	_	_	_	_	_	2
Spiral ring	_	broken	_	_	1	_	_	_	_	_	_	_	_	_	1
Nodule	_	Pure nodule	_	1	_	_	_	_	_	_	_	_	_	_	1
Pottery	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
Disc	_	Circular, with perforation	_	2	2	_	1	_	_	_	_	1	_	_	6
Graffiti	_	Triangular, circular	_	1	_	_	_	_	_	_	_	_	_	_	1
Other materials	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bangle piece	Faience	broken	_	_	1	_	_	_	_	_	_	_	_	_	1
Unidentified	T.C	Perforated	_	_	1	_	_	_	_	_	_	_	_	_	1

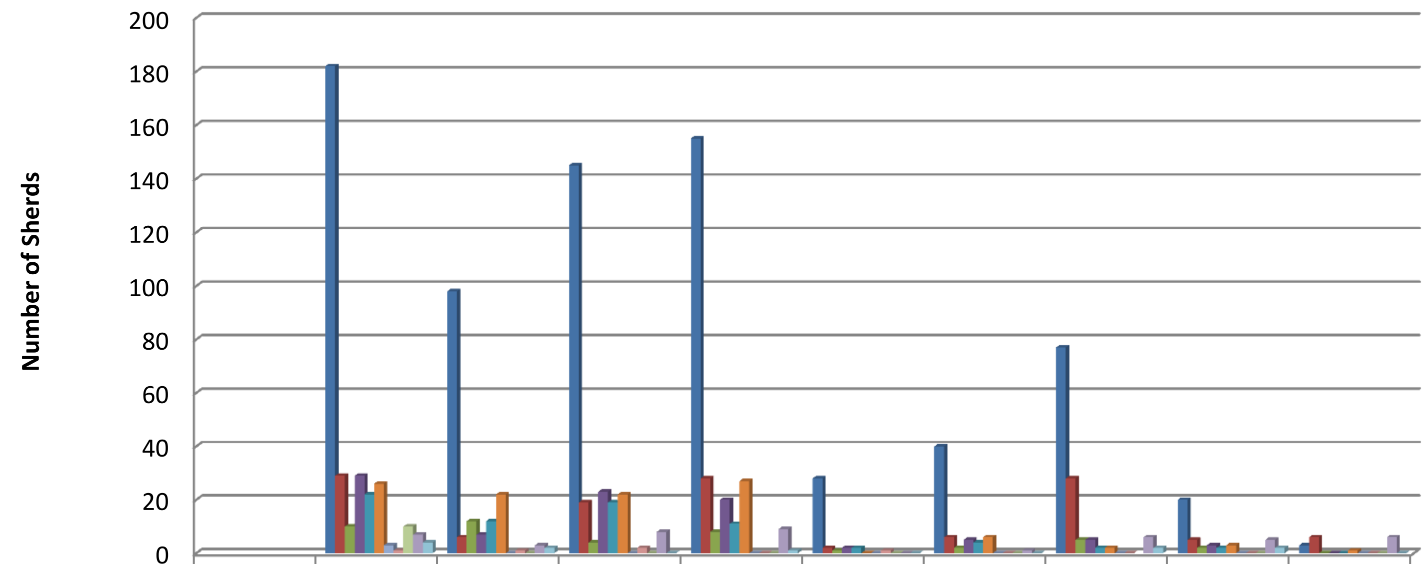
temporally and spatially and its percentage reaches its maximum during phase II of cultural occupation at the site. Other materials present mainly include terracotta objects like triangular TC cake, hubbed wheel, toy cart frame, animal figurines, TC disk etc. Rests of the materials are less in number however shows their presence. As far as the lithic debitage is concerned blade blanks, and the presence of huge number of primary, secondary and tertiary chipping waste of local chert indicate the manufacturing of blades at the site. Even though, long Rohri chert blades are present at the site, the absence of the manufacturing waste indicate that these products might have been imported to the site from some other centers or they have been produced in some other area at the site.

A close look at the antiquities recovered from both the trenches (Er13 and Eo3) shows more or less same pattern of distribution. It is evident that shell and shell objects (industry) was present at the site from the very beginning of the occupation and continued and flourished during the Mature Harappan period and suffered a setback during phase III and IV. The same is the situation with the case of lithic industry as well. An analysis of the lithic debitage, the number of the finished objects and its distribution through various phases show that the site was a major centre of lithic/blade production during the mature Harappan time (Gadekar 2006). The utilization of locally available raw materials like chert, chalcedony, agate and blood stone shows that the local lithic industries were also supported the cultural activities at the site.

4.1.6 Ceramic Analysis of Trench Eo3 and its Results

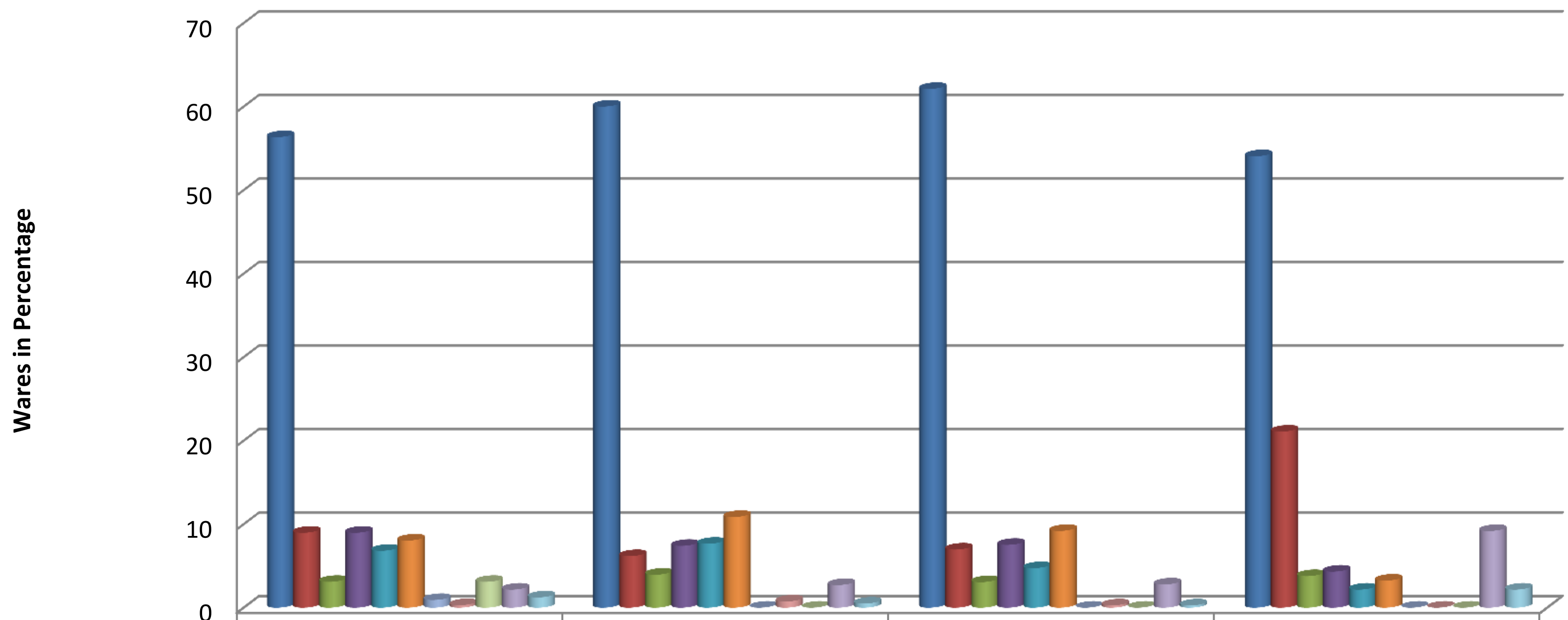
Similar method of analysis that of Er13 has been carried out at Eo3. The one and only difference is the sample number and layers. In case of Eo3 as well the four cultural phase division of the excavaters were followed.

Figure 4.19 Layer wise Distribution of General Wares from Eo3



	1	2	3	4	5	6	7	8	9	10
RW		182	98	145	155	28	40	77	20	3
RWBS		29	6	19	28	2	6	28	5	6
Bichrome Ware		10	12	4	8	1	2	5	2	0
Burnished RW		29	7	23	20	2	5	5	3	0
Chocolate slipped ware		22	12	19	11	2	4	2	2	0
Gritty RW		26	22	22	27	0	6	2	3	1
Incised RW		3	0	0	0	0	0	0	0	0
Micaceous RW		1	1	2	0	1	0	0	0	0
Gray Ware		10	0	0	0	0	0		0	0
Buff Ware		7	3	8	9	0	1	6	5	6
BWRS		4	2	0	1	0	0	2	2	0

Figure 4.20 Phase wise Distribution of General Wares from Eo3



	IV	III	II	I
RW	56.34	60	62.11	54.05
RWBS	8.97	6.17	6.96	21.08
Bichrome Ware	3.09	3.95	3.06	3.78
Burnished RW	8.97	7.4	7.52	4.32
CSW	6.81	7.65	4.73	2.16
Gritty RW	8.04	10.86	9.19	3.24
Incised RW	0.92	0	0	0
Micaceous RW	0.3	0.74	0.27	0
Gray Ware	3.09	0	0	0
Buff Ware	2.16	2.71	2.78	9.18
BWRS	1.23	0.49	0.27	2.16

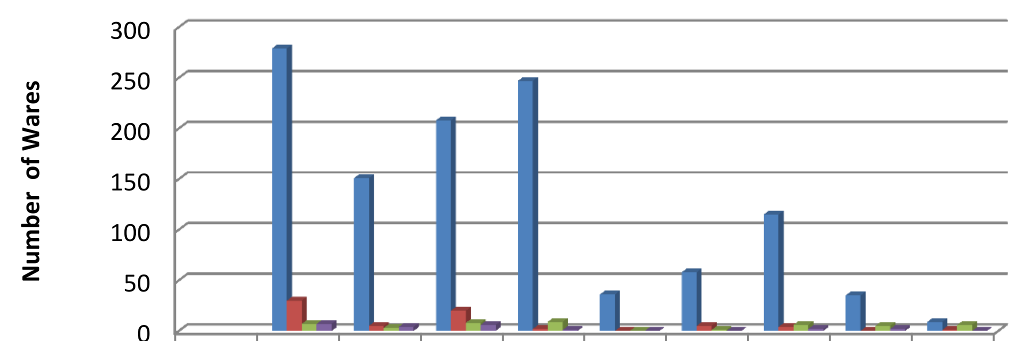
4.1.6.1 Ware Wise Classification

The layer wise distribution of the general Wares (Figure 4.19) shows an increase in the quantity of ceramics towards the fourth phase of cultural occupation. The total assemblage is dominated by the Red Ware. Phase wise distribution (Figure 4.20) shows that along with Red Ware, Red Ware with Buff Slip and Burnished Red Ware were also present in considerable quantity.

The general ware classification resulted in eleven major wares. No characteristic change has been noticed different from that of trench Er13. The major wares identified in Eo3 include the Red Ware, Burnished Red Ware, Buff Ware, Bichrome Ware, Chocolate Sliped Ware, Mica dusted Red Ware, Red Ware with Buff slip, Buff Ware with Red slip, Gritty Red Ware, Black and red Ware and Black /Gray Ware

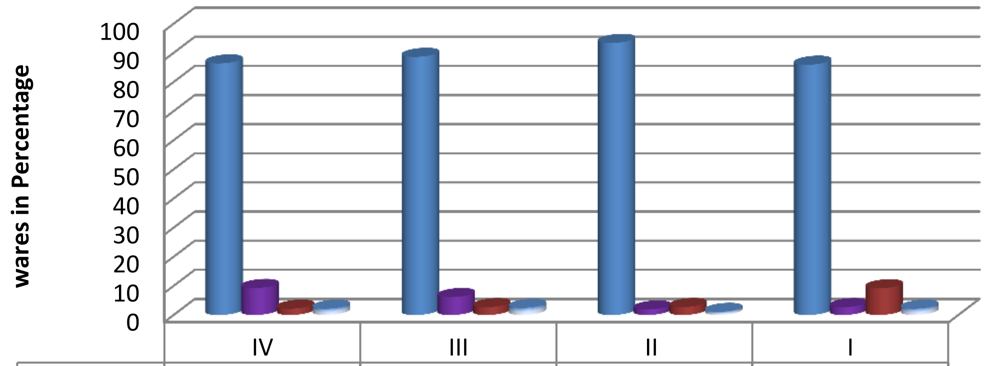
The following histogram (Figure 4.21) shows the layer wise distribution of re arranged Wares from trench Eo3. The major include RW, Buff Ware, RWBS and BWRS. Like Er13, here also the RW dominate the entire assemblage while RWBS is the second dominant Ware. Buff Ware and BWRS falls next in percentage.

Figure 4.21 Layer wise Distribution of Re-arranged Wares from Eo3



	1	2	3	4	5	6	7	8	9	10
RW		279	151	208	247	36	58	115	35	9
RWBS		30	5	20	2	0	5	4	0	1
Buff Ware		7	3	8	9	0	1	6	5	6
BWRS		7	4	6	1	0	0	2	2	0

Figure 4.22 Phase wise Distribution of Re-arranged Wares from Eo3



	IV	III	II	I
RW	86.37	88.64	93.42	85.94
RWBS	9.28	6.17	1.91	2.7
Buff Ware	2.16	2.71	2.73	9.18
BWRS	2.16	2.46	1.09	2.16

The layer wise distribution of the sherds shows a considerable decrease in the percentage of wares. Layer 1 material is not considered for analysis due to its disturbed nature and the presence of huge pit, mixed with all type of eroded and ashy materials. The phase wise distribution of the rearranged wares (Figure 4.22) shows that RW is present at its maximum in all the four phases (85 to 90%). The rest of the wares are marginal in its percentage. No characteristic change is observable in the assemblage compared to Er13. The difference in the percentage and the presence or absence of certain wares can be explained as a difference in activity.

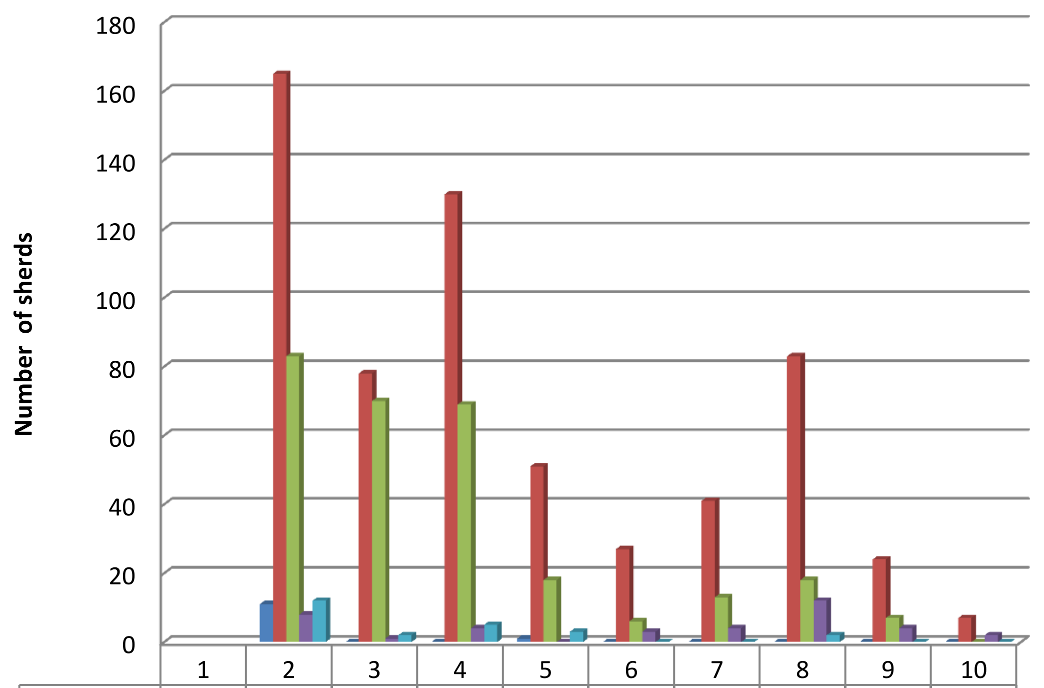
4.1.6.2 Texture Wise Classification

The following histograms show the textural distribution of different wares at Eo3. Layer (Figure 4.23) and phase wise (Figure 4.24) distribution has been initiated to understand the major changes happening.

Red Ware is mostly available in very fine to fine textures irrespective of shape and phases. Medium, medium coarse and coarse are the other textural forms available

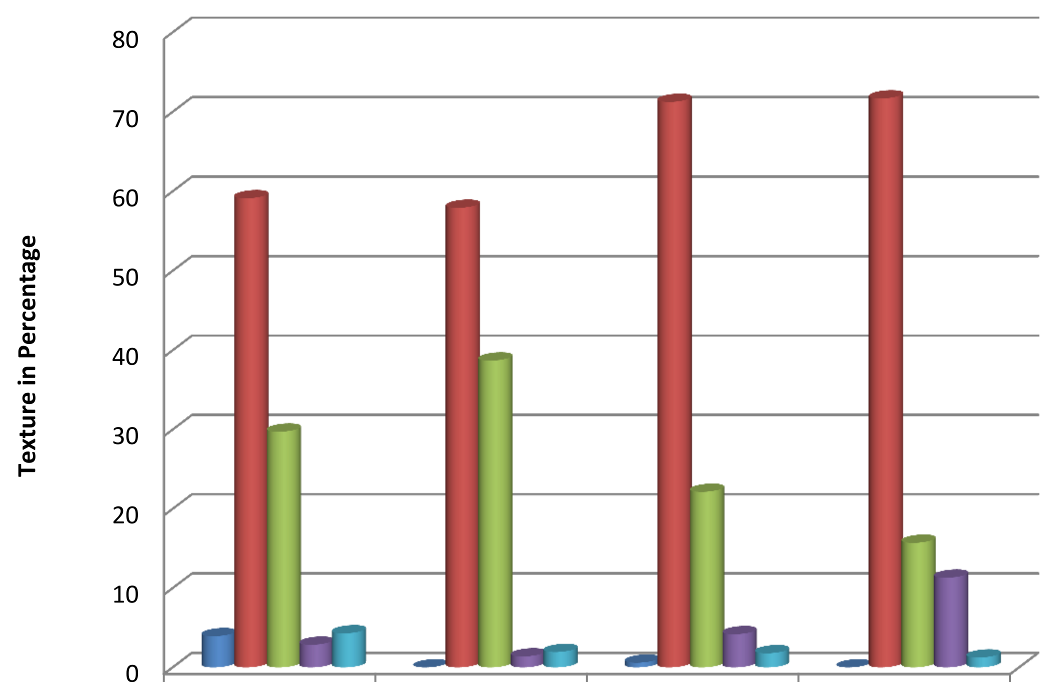
in Red Ware. All these textures are present throughout the phases. At Phase I and II the textural distribution is more or less same and can be considered as fine to medium fabric. In case of phase III and IV (Figure 4.24) a decrease in the total percentage of coarse, medium textures and an increase in very fine to fine textures are observable. Here phase III and IV can be considered as very fine to fine texture In both the cases, the samples falls either very fine, fine or very fine to fine category. In case of Buff Ware (Figure 4.25), it exclusively fall in the category of very fine to fine fabric and is very much consistant through out the phases. A similar pattern of distribution can be seen on BWRS. In Phase I and III the one and only texture available is fine fabric while Phase IV is charecterised with very fine wares aswel. However, the histogram (4.26) clearly indicate that both Buff Ware and BWRS exclusively fall in the category of very fine to fine fabric.

Figure 4.23 Layer wise External Textural Distribution of Red Wares from Eo3



	1	2	3	4	5	6	7	8	9	10
V.Fine		11	0	0	1	0	0	0	0	0
Fine		165	78	130	51	27	41	83	24	7
Medium		83	70	69	18	6	13	18	7	0
M.Coarse		8	1	4	0	3	4	12	4	2
Coarse		12	2	5	3	0	0	2	0	0

Figure 4.24 Phase wise External Textural Distribution of Red Wares from Eo3



	Phase IV	PhaseIII	Phase II	Phase I
V.Fine	3.94	0	0.59	0
Fine	59.13	57.93	71.25	71.69
Medium	29.74	38.71	22.15	15.72
M.Coarse	2.86	1.39	4.19	11.32
Coarse	4.3	1.94	1.79	1.25

Red Ware with Buff Slip has a different textural distribution from that of Red Ware.The layer wise distribution (Figure 4.27) shows that Red Ware with Buff Slip is only present in layers 2, 3, 4, 7, 8, and 10. Here the texture falls in the category of very fine to fine. The Phase wise distribution (Figure 4.28) clearly indicate the monopoly of fine wares in all phases except phase IV. Very fine and medium wares are also present eventhough, are less in percentage (<5% of the total assemblage).

Figure 4.25 Phase wise External Textural Distribution of Buff Wares from Eo3

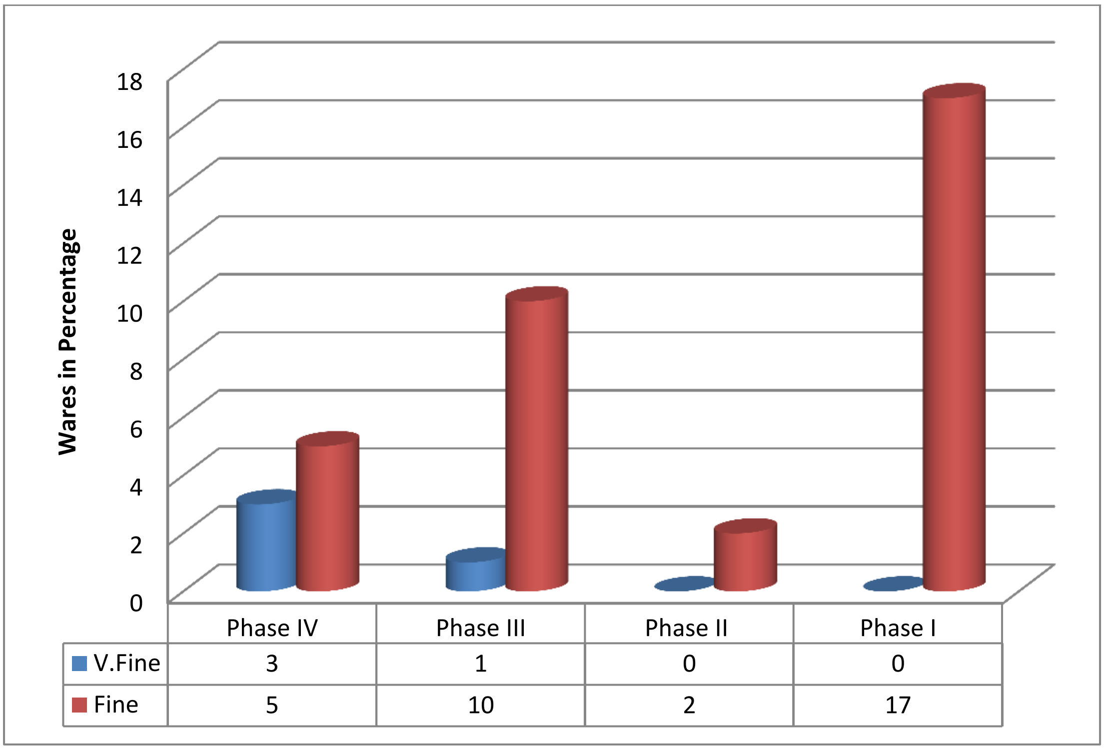


Figure 4.26 Phase wise External Textural Distribution of Buff Ware with Red Slip from Eo3

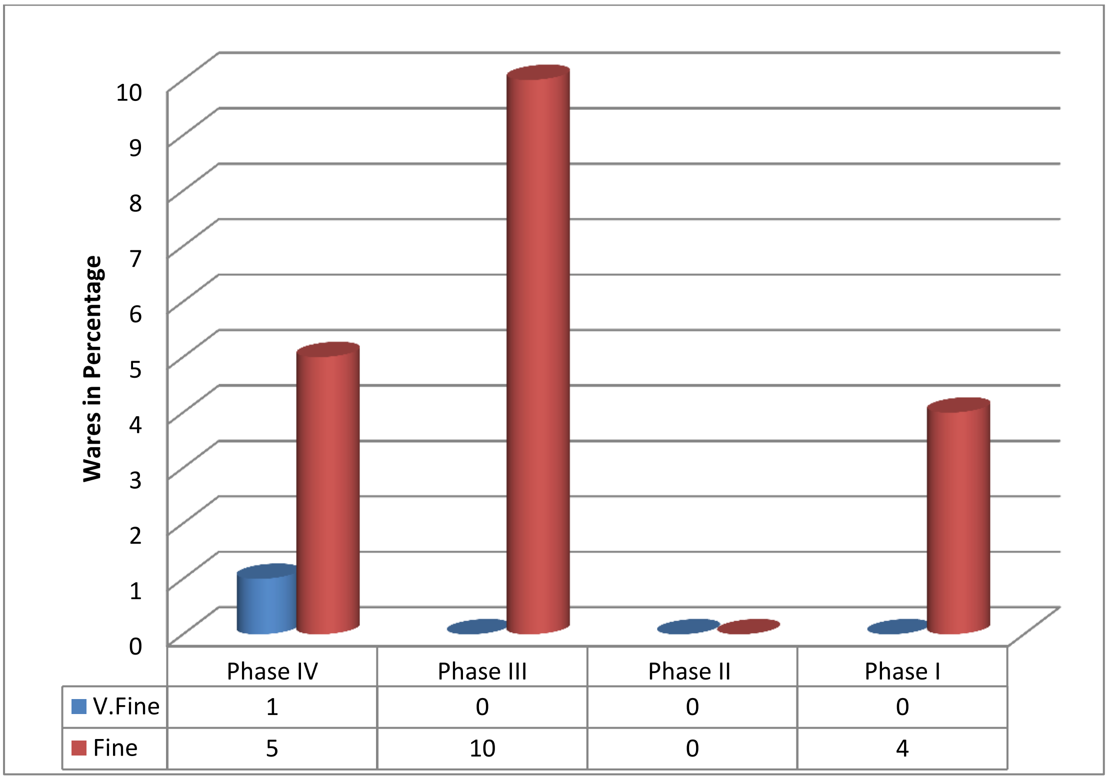
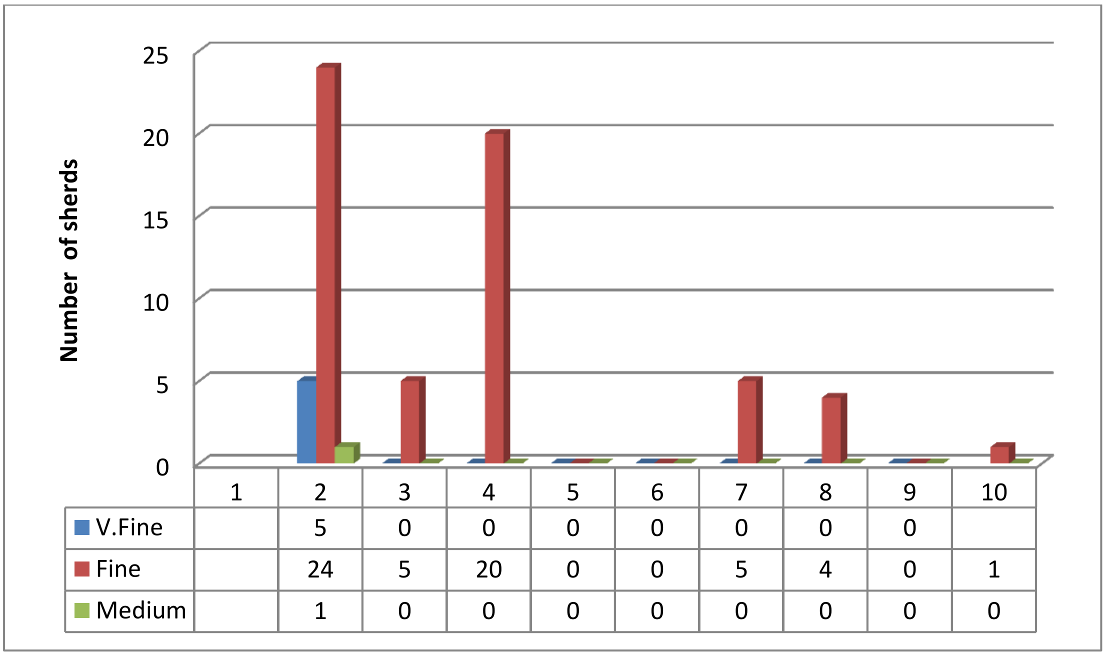
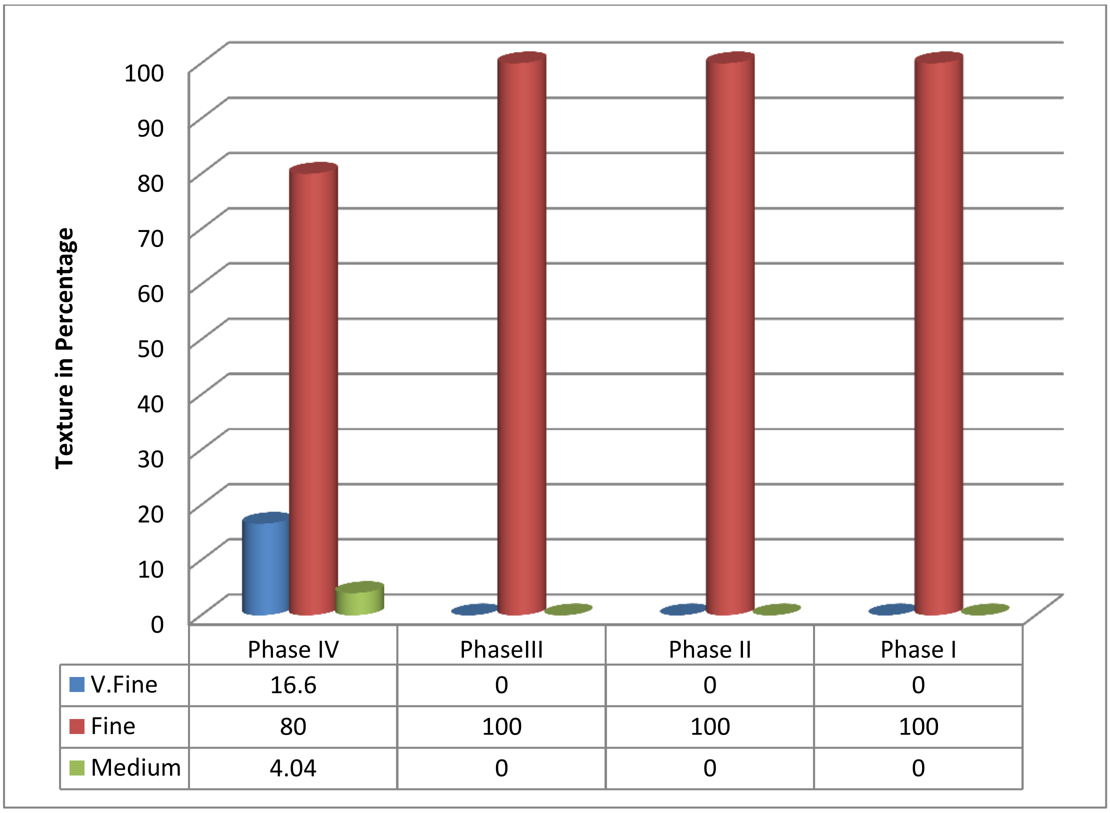


Figure 4.27 Layer wise External Textural Distribution of Red Ware with Buff Slip from Eo3



	1	2	3	4	5	6	7	8	9	10
V.Fine		5	0	0	0	0	0	0	0	
Fine		24	5	20	0	0	5	4	0	1
Medium		1	0	0	0	0	0	0	0	0

Figure 4.28 Phase wise External Textural Distribution of Red Ware with Buff Slip from Eo3



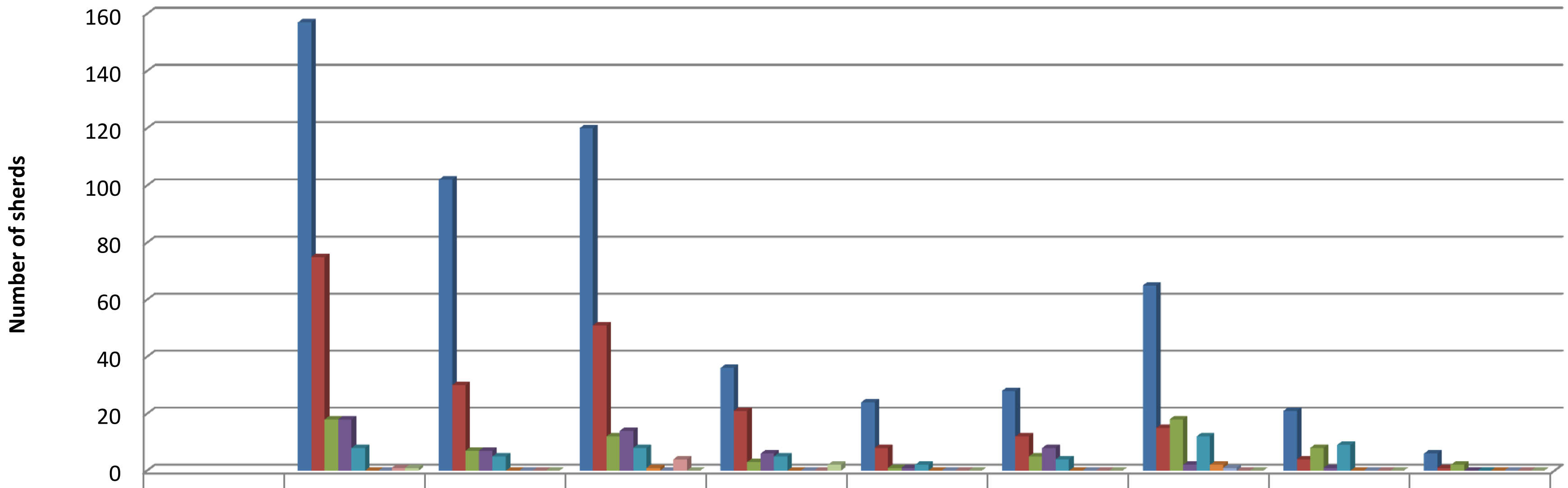
	Phase IV	PhaseIII	Phase II	Phase I
V.Fine	16.6	0	0	0
Fine	80	100	100	100
Medium	4.04	0	0	0

4.1.6.3 Shape wise Classification

The shape wise classification carried out on the samples at Eo3 produced results similar to that of Er13. Red Ware, RWBS, Buff Ware and BWRS are the major wares analyzed. The following histogram shows the layer (Figure 4.29) and phase wise (Figure 4.30) distribution of Red Ware vessels from Eo3. As far as Red Ware is concerned, pots, bowls, basins and dishes are the major vessel shapes available. Other shapes present in the assemblage include dish on stand, beaker, bottles, goblet, and lid and are sparse in their percentage. The chart (Figure 4.29) shows the layer wise distribution of major shapes present at Eo3.

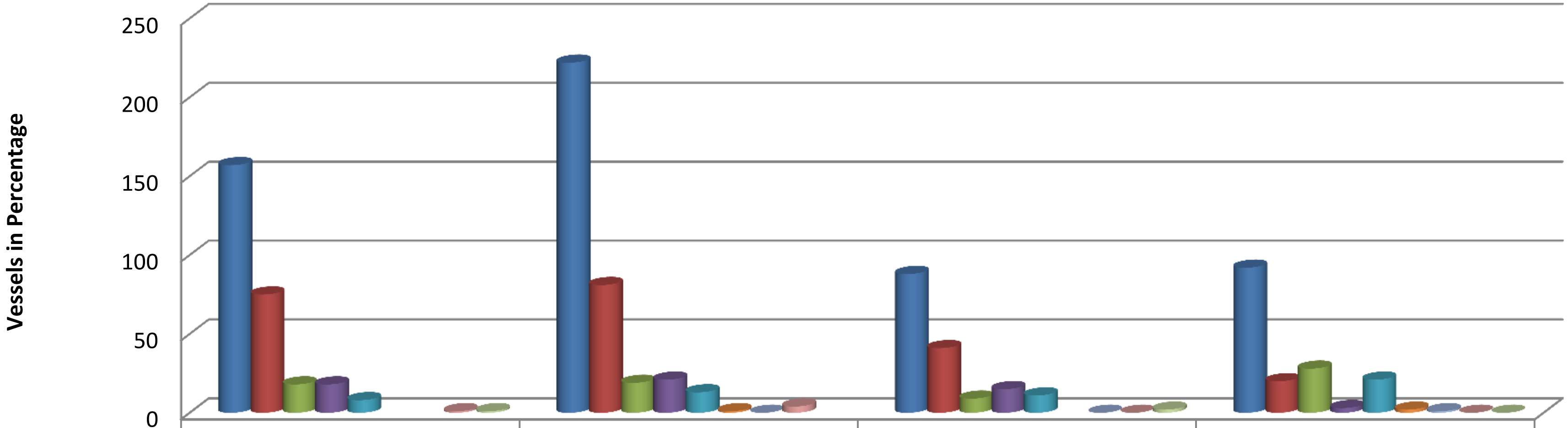
The major shapes remain present in all four phase and the rest of the shapes may fluctuate in its percentage from layer to layer and from phase to phase. Among the shapes pot/jar are the most prominent and commonest. It represents 40 to 50% of the total assemblage (Figure 4.30). Bowls are the second dominant shape present and are represented with 20 to 30% of the total assemblage. Basins, dishes and dish on stand are the three other major shapes representing 10 to 20% of the total assemblage. Other shapes are very less in number and fall less than 2% of the total assemblage.

Figure 4.29 Layer wise distribution of Red Ware Vessels from Eo3



	1	2	3	4	5	6	7	8	9	10
Pot		157	102	120	36	24	28	65	21	6
Bowl		75	30	51	21	8	12	15	4	1
Basin		18	7	12	3	1	5	18	8	2
Dish		18	7	14	6	1	8	2	1	0
Dish on st		8	5	8	5	2	4	12	9	0
Beaker		0	0	1	0	0	0	2	0	0
Bottle		0	0	0	0	0	0	1	0	0
Goblet		1	0	4	0	0	0	0	0	0
lid		1	0	0	2	0	0	0	0	0

Figure 4.30 Phase wise distribution of Red Ware Vessels from Eo3

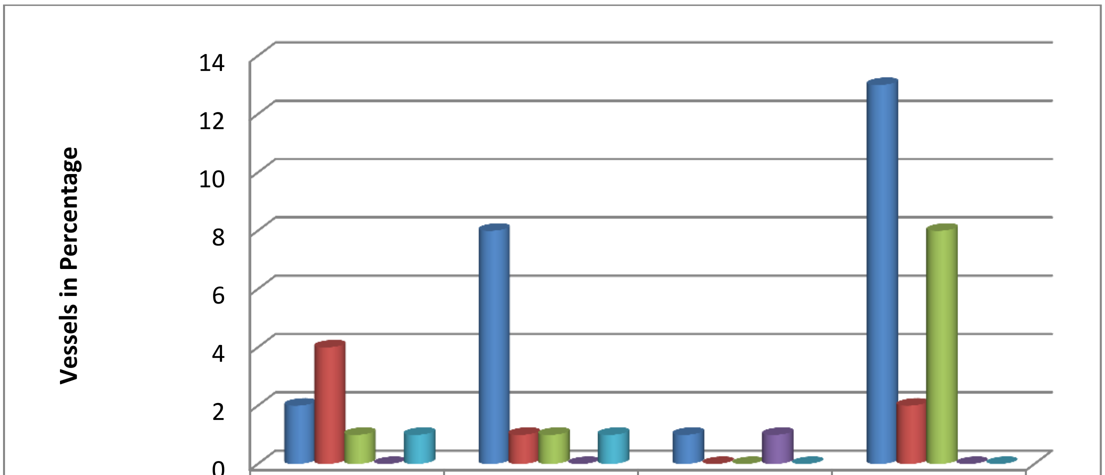


	Phase IV	Phase III	Phase II	Phase I
Pot	157	222	88	92
Bowl	75	81	41	20
Basin	18	19	9	28
Dish	18	21	15	3
Dish on stand	8	13	11	21
Beaker		1		2
Bottle		0	0	1
Goblet	1	4	0	0
lid	1		2	0

The phase wise distribution of major shapes in Buff Ware (Figure 4.31) is shown in the histogram given below. Here, the major shapes present in Buff Ware are, pots, bowls, basins, dishes, and dish on stand. Pots and Bowls are the common shapes present in all four phases. Pots and basins along with bowls are the major shapes present at phase I. In case of Phase II dishes and pots dominate the assemblage. At Phase III and IV the number of shapes increases. At phase III all shapes are present except dishes and among the shapes, pots dominates with above 70%. At Phase IV bowls are the dominant shape and pots are the second dominant shape. Bowls and pots together constitute above 75% of the total assemblage.

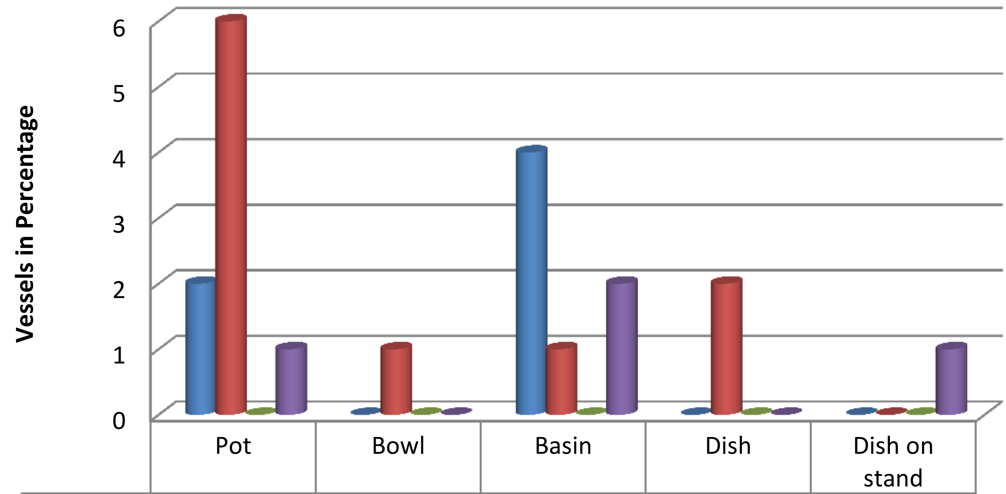
The major shapes present in BWRS are, basins, pots dishes, dish on stand and bowl (Figure4.32). Basins are the most dominant shape at Phase I and IV while pots dominates in Phase III. Dish on stand is only noticed in Phase I and dishes and bowls at Phase III only. The common shapes present in all the phases are pots and basins.

Figure 4.31 Phase wise Distribution of Buff Wares Vessels from Eo3



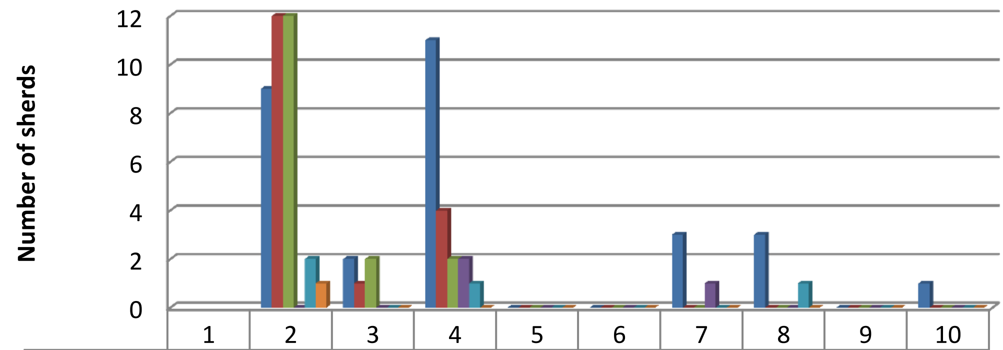
	Phase IV	Phase III	Phase II	Phase I
Pot	2	8	1	13
Bowl	4	1	0	2
Basin	1	1	0	8
Dish	0	0	1	0
Dish on stand	1	1	0	0

Figure 4.32 Phase wise Distribution of Buff Wares with Red Slip Vessels from Eo3



	Pot	Bowl	Basin	Dish	Dish on stand
Phase IV	2	0	4	0	0
Phase III	6	1	1	2	0
Phase II	0	0	0	0	0
Phase I	1	0	2	0	1

Figure 4.33 Layer wise Distribution of Red Wares with Buff Slip Vessels from Eo3

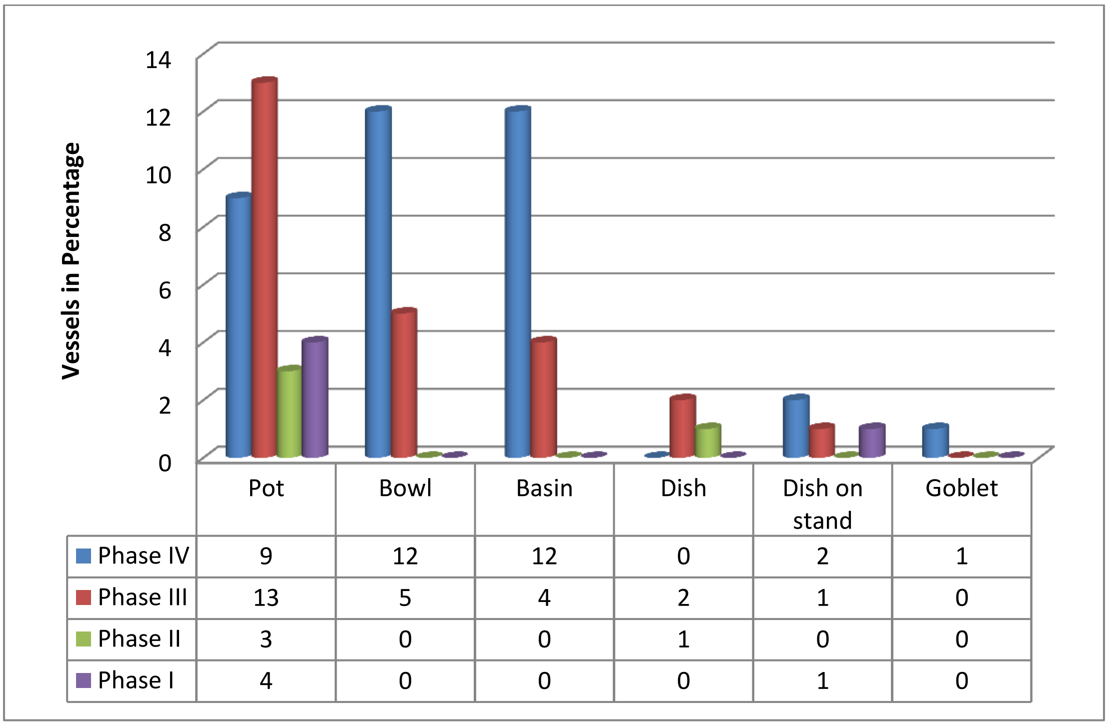


	1	2	3	4	5	6	7	8	9	10
Pot		9	2	11	0	0	3	3	0	1
Bowl		12	1	4	0	0	0	0	0	0
Basin		12	2	2	0	0	0	0	0	0
Dish		0	0	2	0	0	1	0	0	0
Dish on st		2	0	1	0	0	0	1	0	0
goblet		1	0	0	0	0	0	0	0	0

In case of RWBS pots are the most dominant shape which is followed by bowls, basins, dishes, dish on stand and goblet. The layer wise distribution (Figure 4.33) shows that pots, are the vessels available in all layers. Bowls and dishes are very

less in numbers. The Phase wise distribution of RWBS (Figure 4.34) shows that the pots have maximum representation at Phase I (80%) and decrease gradually and reach its minimum at Phase IV (25%). Bowls and Basins are only present in Phase III and IV and are increasing at an increasing percentage. They reaches their maximum at phase IV (>35 dishes are similar in their distribution with that of pots and are inverse in relations to basins and bowls .The dishes has a bare minimum at Phase IV (<1%) and a maximum at phase II (>25%).

Figure 4.34 Phase wise Distribution of Red Wares with Buff Slip Vessels from Eo3



	Pot	Bowl	Basin	Dish	Dish on stand	Goblet
Phase IV	9	12	12	0	2	1
Phase III	13	5	4	2	1	0
Phase II	3	0	0	1	0	0
Phase I	4	0	0	0	1	0

Altogether the shape wise classification of samples from Eo3 shows a similar result. Minor differences are there in the percentage of the minor wares. The presence of certain new shapes like lid, goblet, dish on stand etc can be explained as the difference in area of activity.

The following table (Table 4.3) shows the description of major Pottery Drawings from Bagasra. Here representative sherds were selected for drawing after considering parameters like layer, ware, external texture and shape and rim forms.

Table 4.3 description of the Pottery Drawing from Bagasra.

Sl.No.	Sa No	layer	Ware	Shape	Form	Ext. Texture	Ext. Slip Color	Int. Slip Color	Core	Remark
1	BSR 79	14	RW	pot/jar	rim	v.fine	10R5/8	5YR8/4	5YR8/4	externally projected flaring rim, elongated neck
2	BSR 58	15	RW	pot/jar	rim	coarse	5YR7/6	5YR7/6	7.5R2.5/0	externally projected faring rim, short necked
3	BSR 29	17	RW	pot/jar	rim	m.coarse		5YR7/6		externaly projected, beaded rim
4	BSR 87	13	RW	pot/jar	rim	medium	5YR6/6	5YR6/6	5YR5/6	externally projected everted rim
5	BSR 26	17	RW	pot/jar	rim	m.coarse		2.5Y3/0		externaly projected beaded rim
6	BSR 72	14	BW	pot/jar	rim	medium	5Y8/2		5Y8/3	externally projected flaring rim,short necked
7	BSR 929	15	RW	pot/jar	rim	medium		10R6./6	5YR7/6	everted rim
8	BSR 932	17	RW	pot/jar	rim	medium	10R6/8	5YR7/6	5YR7/6	beaked rim
9	BSR 771	14	RW	pot/jar	rim	fine			5YR7/6	externally projected, everted rim.
10	BSR 775	14	RW	pot/jar	rim	v.fine			5YR7/6	externally projected subrounded rim, elongated neck
11	BSR 78	14	RW	pot/jar	rim	coarse	10YR8/3	10R6/8	7.5R2.5/0	externally projected everted rim
12	BSR 53	15	RW	pot/jar	rim	v.fine	10R6/8	5YR7/6	2.5Y6/6	externally projected flaring rim with elogated neck
13	BSR 761	13	RW	Perforated pot	rim	medium	5YR7/6	5YR7/6	5YR8/4	externally projected flaring rim sand on the surface
14	BSR 31	16	RW	pot/jar	rim	coarse	7.5YR8/4		7.5YR8/0	externaly projected beaded rim, gritty surface
15	BSR 923	17	RW	pot/jar	rim	v.fine	5.5R4/6	2.5Y8/2	2.5Y7/2	beaked rim
16	BSR 770	15	RW	pot/jar	rim	fine	10R6/3	10R6/3	5YR8/2.	externally projected, everted, thick rim

17	**BSR 803**	14	RW	basin	rim	m.coarse	10R6/6	10R6/6	7.5YR7/6	**externally projected rim, grove below the rim**
18	**BSR 92**	13	RWBS	basin	rim	medium	10R6/6	10R6/6	5YR7/6	**externally projected flaring rim**
19	**BSR 841**	17	RW	basin	rim	m.coarse	2.5YR6/6	2.5YR6/6	5YR5/2	**externally projected rim, gritty surface**
20	**BSR 839**	17	BW	basin	rim	v.fine	5Y7/4		7.5YR6/4	**bilateral projecteion, externally more projected**
21	**BSR 83**	13	BW	basin	rim	fine	10R5/4	10R5/4	2.5Y8/4	**bilateralprojecting equal projection, flat rim**
22	**BSR 778**	13	RW	basin	rim	medium	10R6/6	10R6/6	7.5YR6/0	**externally projected everted rim**
23	**BSR 927**	16	RW	basin	rim	fine			10YR8/4	**externally projected beaded rim**
24	**BSR 1**	17	RW	basin	rim	fine	7.5R 6/8	7.5R 6/8	7.5YR 6/6	**externally more projected rim**
25	**BSR 840**	17	RW	basin	rim	fine	2.5YR6/6	2.5YR6/6	5YR7/6	**beaked rim, blund carinated shoulder**
26	**BSR 838**	17	RW	basin	rim	fine	10R6/4	10R6/4	7.5YR7/6	**externally more projected internally thickened rim**
27	**BSR 34**	16	RWBS	dish	rim	v.fine	2.5Y8/4	2.5Y8/4	2.5Y8/4	**externally projected flaring rim**
28	**BSR 763**	15	RW	dish	rim	fine	10R6/6	10R6/6	2.5YR6/8	**externally projected flaring out rim**
29	**BSR 837**	17	RW	dish	rim	fine		106/6	10YR8/4	**externally projected rim, grove below the rim.**
30	**BSR 930**	17	RW	dish	rim	fine	7.5YR7/6	7.5YR7/6	7.5YR7/6	**externally projected rim**
31	**BSR 66**	14	RW	dish	rim	fine	5Y8/3	5Y8/3	5YR7/4	**externally projected beaked rim**
32	**BSR 760**	15	RW	dish	rim	fine	2.5YR6/6	2.5YR5/6	5YR6/1	**externally beaked rim**
33	**BSR 68**	14	RW	bowl	rim	coarse	5YR7/6	5YR7/4	5YR6/0	**incurved rim with convex body,**
34	**BSR 767**	13	RW	bowl	rim	medium	2.5YR6/6	2.5YR6/6	5YR6/6	**incurved rim,**

35	BSR 189	10	RW	pot/jar	rim	coarse	7.5YR7/4	7.5YR7/4	7.5YR3/0	**externally projected flaring rim, gritty surface**
36	BSR 102	12	RW	pot/jar	rim	v.fine	10R6/6	5YR7/6	5YR7/6	**externally projected flaring rim, elongated neck.**
37	BSR 175	11	RW	pot/jar	rim	v.fine	10R5/8	10R5/8	5YR7/8	**externally projected flaring rim, elongated neck**
38	BSR 273	8	RW	pot/jar	rim	v.fine	104/4		7.5YR8/4	**externally projected beaded rim**
39	BSR 230	9	RW	pot/jar	rim	m.coarse		7.5R3/0		**externally projected flaring rim , grove below the neck**
40	BSR 100	12	RW	pot/jar	rim	fine	5Y8/4	5Y8/4	5YR7/6	**short beaked rim**
41	BSR 157	11	RW	pot/jar	rim	fine	10R6/8		5YR7/6	**externally projected flaring rim, short necked**
42	BSR 248	9	RW	pot/jar	rim	v.fine	10R6/6	10R6/6	2.5YR6/6	**beaked rim**
43	BSR 136	12	RW	pot/jar	rim	medium	5YR7/6	5YR7/6	5YR7/6	**externally projected flaring out rim**
44	BSR 264	8	RW	pot/jar	rim	v.fine	2.5Y4/4	2.5Y8/4	7.5YR7/6	**externally projected drooping rim, elongated neck**
45	BSR 119	12	RWBS	pot/jar	rim	v.fine	2.5Y8/4	2.5Y8/4	5YR7/6	**externally projected, internally thickened rim**
46	BSR 254	8	RW	pot/jar	rim	m.coarse	5YR7/6	5YR7/6	7.5R3/0	**externally projected flaring rim, gritty surface**
47	BSR 219	9	RW	pot/jar	rim	m.coarse	5YR7/3	5YR7/3	7.5R3/0	**externally projected, short beaked rim**
48	BSR 144	11	RW	pot/jar	rim	coarse	5YR7/6	5YR7/6	7.5YR2.5/0	**externlly projected everted rim**
49	BSR 194	10	RW	pot/jar	rim	coarse	10YR8/4		10yr8/4	**externally projected everted rim**
50	BSR 257	8	RW	pot/jar	rim	fine	7.5R6/4	5YR6/6	10YR6/4	**short beaked rim**
51	BSR 216	9	RW	pot/jar	rim	v.fine	10R5/6		10R6/8	**externally projected flaring rim**

52	BSR 169	11	RW	pot/jar	rim	medium	5YR7/6	5YR7/6	5YR7/6	externally projected flaring rim
53	BSR 221	9	BW	basin	rim	v.fine	10R4/4	10R4/4	5Y8/3	externally projected internally beaked drooping rim
54	BSR 192	10	RW	basin	rim	fine	10YR8/3	10YR8/3	7.5R3/0	externally projected internally beaked rim
55	BSR 203	10	BW	basin	rim	v.fine	5Y8/2	5Y8/2	5Y8/4	externally projected internally beaked rim
56	BSR 214	9	RW	basin	rim	m.coarse	7.5YR6/8	7.5YR6/8	7.52.5/0	externally projected flaring rim
57	BSR 212	9	RW	dish	rim	v.fine	7.5R5/8	7.5R5/8	5YR7/6	externally projected flaring out rim
58	BSR 141	11	RW	dish	rim	v.fine	10R6/6	10R6/6	5YR6/6	externally projected rim, flat brim
59	BSR 96	12	RWBS	basin	rim	v.fine	5YR8/4	10R6/6	10YR8/1	externally projected flaring out rim, gritty surface
60	BSR 806	9	RW	bowl	rim	medium	7.5R5/6	7.5R5/6	10R5/8	straight sided bowl simple rim
61	BSR 807	10	RW	bowl	rim	fine	10R6/6	10R6/6	7.5YR7/6	externally projected internally thickened rim
62	BSR 919	11	RW	bowl	rim	medium	10R6/6	10R6/6	5YR5/6	incurved rim
63	BSR 852	12	RW	bowl	rim	fine	10R6/6	5YR7/4	5YR7/4	externally projected rim
64	BSR 854	10	RW	bowl	rim	fine			7.5YR8/6	externally projected rim, internally thickened rim
65	BSR 916	11	RW	bowl	rim	fine	2.5Y8/4	2.5Y8/4	5YR7/8	externally projected rim
66	BSR 811	10	RW	bowl	rim	medium	7.5R4/4	7.5R4/4	10R5/6	straight sided bowl internally thickened rim
67	BSR 855	11	RW	bowl	rim	m.coarse	10R6/6	10R6/6	7.5YR7/6	incurved rim
68	BSR 853	11	RW	bowl	rim	fine			5YR7/6	convex sided bowl with internally thickened rim

69	**BSR 809**	9	RW	bowl	rim	v.fine	10YR5/2	2.5YR5/4	7.5YR7/6	**concavo convex sided bowl with simple rim**
70	**BSR 851**	12	RW	bowl	rim	fine	10R5/6	5YR7/6	5YR6/6	**convex sided bowl with simple rim**
71	**BSR 706**	6	RW	pot/jar	rim	m.coarse	7.5YR7/4	7.5YR7/4	7.5YR2.5/0	**externally projected flaring rim**
72	**BSR 729**	6	RWBS	pot/jar	rim	v.fine	7.5YR4/2		10YR8/4	**externally projected everted rim**
73	**BSR 732**	6	RWBS	pot/jar	rim	fine	7.5YR8/2		7.5YR8/4	**externally projected rim**
74	**BSR 704**	6	RW	pot/jar	rim	fine	5Y8/3		5YR7/6	**short beaked elongated neck**
75	**BSR 288**	7	RW	pot/jar	rim	v.fine	10R6/6	10R6/8	10YR5/4	**beaked rim**
76	**BSR 708**	6	RW	pot/jar	rim	v.fine	10R5/6		5YR6/6	**externally projected rim**
77	**BSR 698**	6	RW	pot/jar	rim	fine	5YR6/6		5YR7/6	**short beaked elongated neck**
78	**BSR 709**	6	RW	pot/jar	rim	fine			2.55/8	**externally projected everted rim, flat brim**
79	**BSR 706**	6	RW	pot/jar	rim	m.coarse	7.5YR7/4	7.5YR7/4	7.5YR2.5/0	**externally projected flaring rim**
80	**BSR 715**	6	RWBS	pot/jar	rim	fine	5YR3/1		10YR7/2	**short beaked**
81	**BSR 722**	6	RW	pot/jar	rim	fine	10R4/4		7.5R7/4	**externally projecteing flaring rim**
82	**BSR 718**	6	RW	pot/jar	rim	m.coarse		7.5YR2.5/0		**beaked rim**
83	**BSR 726**	6	RW	pot/jar	rim	medium			5YR6/4	**externally projected everted rim**
84	**BSR 724**	6	RW	pot/jar	rim	coarse	5YR7/6	5YR7/6	7.5YR2.5/0	**quadrangular rim**
85	**BSR 312**	7	RW	basin	rim	m.coarse	10YR8/3	10YR8/3	7.5R4/0	**externally projected internally beaked rim**
86	**BSR 719**	6	RW	basin	rim	medium	10R6/6	10YR8/4	7.5YR7/6	**externally projected thickened rim**

87	**BSR 292**	7	RW	dish	rim	m.coarse	7.5YR8/2	7,5YR8/2	7.5R3/0	**externally projected everted thick rim**
88	**BSR 714**	6	RW	basin	rim	m.coarse	10R6/8	10R6/8	7.5YR3/0	**bilaterally projected rim, carinated shoulder**
89	**BSR 691**	6	RW	basin	rim	medium	10YR8/4	10YR8/4	10YR8/6	**externally projected flaring out rim**
90	**BSR 696**	6	RW	dish	rim	fine	7.5R4/4	7.5R4/4	2.5YR6/6	**externally projected internally beaked rim**
91	**BSR 747**	6	RW	dish	rim	medium		10R6/8	7.5YR6/4	**externally projected internally beaked ,thick rim**
92	**BSR 313**	6	RW	dish	rim	fine	2.5Y8/0	7.5R4/6	5YR7/6	**convex sided bowl**
93	**BSR 296**	7	RW	bowl	rim	fine	5YR7/6	5YR7/6	10R6/8	**incurved rim**
94	**BSR 317**	6	RW	bowl	rim	medium		10R6/6	5YR7/6	**incurved rim**
95	**BSR 731**	6	RW	bowl	rim	coarse	7.5YR8/4	7.5YR8/4	7.5YR2.5/0	**externally projected rim with grove below the rim**
96	**BSR 284**	7	BW	bowl	rim	fine	5YR4/2		5Y8/4	**externally projected ,internally thickened rim**
97	**BSR 329**	6	RW	bowl	rim	fine	10R6/8	10R6/8	5YR7/6	**externally projected, thickened rim**
98	**BSR 783**	7	RW	bowl	rim	fine	10R4/4	5YR6/6	5YR6/6	**convex sided bowl**
99	**BSR 749**	6	RW	bowl	rim	v.fine	10R5/8	10R5/8	10R5/8	**externally projected internally thickened rim**
100	**BSR 812**	6	RW	bowl	rim	v.fine	10R4/4		5YR6/4	**externally projected rim, elongated neck**
101	**BSR 685**	1	RW	pot/jar	rim	fine	10R6/6		5YR7/6	**everted beaded rim**
102	**BSR 639**	2	RW	pot/jar	rim	fine	10R6/6		5YR7/6	**externally projected beaded rim**
103	**BSR 454**	3	RW	pot/jar	rim	fine	10R5/8	5YR7/6	2.5YR5/6	**externally projected everted rim**
104	**BSR 478**	3	RW	pot/jar	rim	fine	7.5R5/6		5YR7/6	**externally projected flaring rim**

105	BSR 442	4	RW	pot/jar	rim	medium	7.5R6/6	7.5R6/6	7.5YR5/4	short beaked rim
106	BSR 445	4	RW	pot/jar	rim	fine	10R6/6	10R6/8	10R6/8	externally projected everted rim
107	BSR 403	5	RW	pot/jar	rim	fine	10R5/4	10R5/4	10R8/2	quadrangular rim
108	BSR 478	4	RW	pot/jar	rim	fine	5YR5/2	5YR4/1	2.5YR5/4	externally projected flaring rim
109	BSR 453	4	BW	pot/jar	rim	fine	5Y6/3	5Y8/2	5Y7/4	short beaked rim
110	BSR 416	5	RW	pot/jar	rim	fine	5YR4/3	7.5YR7/4	5YR7/6	beaked rim
111	BSR 460	3	BW	pot/jar	rim	v.fine	5Y8/3	5Y8/3	2.5Y8/2	externally projected everted rim
112	BSR 488	3	RW	pot/jar	rim	medium	7.5R6/6	7.5R6/6	7.5R4/0	externally projected everted rim ,grove below the rim
113	BSR 431	5	RW	pot/jar	rim	v.fine	5YR6/6	10-YR8/4	7.5YR7/6	externally projected flaring rim elongated neck
114	BSR 366	5	RW	pot/jar	rim	v.fine	7.5R5/4	7.5YR7/6	7.5YR7/6	everted rim, sharp carinated shoulder
115	BSR 378	5	RW	pot/jar	rim	m.coarse	5YR4/2	7.5R3/0		externally projected flaring rim,grove below the rim
116	BSR 392	5	RW	pot/jar	rim	fine	7.5YR4/6	5YR7/6	10YR7/6	externally projected sub rounded rim, elongated neck
117	BSR 405	5	RW	pot/jar	rim	v.fine	10R6/6	10R6/6	10YR8/4	externally projected rim
118	BSR 471	3	RW	pot/jar	rim	v.fine	10R5/2	10R5/2	5YR5/2	externally projected beaded rim
119	BSR 400	5	RW	pot/jar	rim	fine	5R4/2		10R6/4	externally projected beaded rim
120	BSR 371	5	RW	pot/jar	rim	fine	10R6/6	10R6/8	7.5R5/8	externally projected everted, grove below the rim

121	BSR 397	5	RW	pot/jar	rim	fine	10R6/6	5YR7/6	7.5YR6/0	externally projected ,everted,thick rim
122	BSR 383	5	RW	pot/jar	rim	v.fine	10R4/3	10R4/3	5YR7/6	externally projected thick flaring rim
123	BSR 388	5	RW	pot/jar	rim	coarse	2.5YR6/6	2.5YR6/6	7.5R2.5/0	Bilaterally projected
124	BSR 72	3	RW	pot/jar	rim	medium			2.5Y6/6	externally projected everted rim
125	BSR 466	3	RW	dish	rim	fine	7.5R6/6		10R6/8	externally projected flaring ,drooping rim
126	BSR 464	3	RW	dish	rim	medium	7.5YR3/0	7.5YR3/0	7.5YR3/4	externally projected rim
127	BSR 452	4	RW	dish	rim	fine	7.5R6/8		7.5R6/4	externally projected flaring out drooping rim
128	BSR 387	5	RW	dish	rim	fine	10R6/6	10R6/6	5YR7/6	externally projected rim
129	BSR 652	2	RW	dish	rim	fine	7.5R6/6	7.5R6/6	5YR7/6	externally projected, internally beaked rim
130	BSR 399	5	RW	dish	rim	fine	10R5/6	10R5/6	10R6/8	convex sided bowl with externally projected rim
131	BSR 908	5	RW	bowl	rim	v.fine	7.5R5/6		5YR7/4	convex sided bowl with simple rim
132	BSR 909	5	RW	bowl	rim	v.fine	7.5R4/6	7.5R4/2	2.5Y7/4	straight sided bowl, internally thickened rim
133	BSR 897	2	RW	bowl	rim	fine	10R5/4	10R5/4	10R5/6	straight sided bowl with internally thickened rim
134	BSR 891	2	RW	bowl	rim	v.fine	5Y2.5/1	10R4/8	10R5/6	convex sided bowl with internally thickened rim
135	BSR 889	2	RW	bowl	rim	v.fine	7.5R4/6	7.5R4/6	2.5YR6/6	convex sided bowl with simple rim
136	BSR 835	5	RW	bowl	rim	fine		2.5YR5/6	2.5YR5/8	convex sided bowl with internally thickened rim
137	BSR 819	5	RW	bowl	rim	fine	2.5YR2.5/2	7.5YR8/4		straight sided bowl
138	BSR 878	2	RW	bowl	rim	v.fine	10R5/4	10R5/4	5YR6/8	straight sided bowl, internally thickened rim

139	BSR 435	5	RW	bowl	rim	v.fine	2.5YR5/6	2.5YR5/6	5YR7/6	convex sided bowl
140	BSR 860	2	RW	bowl	rim	v.fine		5YR7/6	2.5YR6/6	incurved rim
141	BSR 818	5	RW	bowl	rim	v.fine	10R6/6	10R6/6	2.5YR6/8	convex sided bowl with simple rim
142	BSR 827	5	RW	bowl	rim	fine		10R4/4	5YR7/4	convex sided bowl with simple rim
143	BSR 780	5	RW	bowl	rim	fine			7.5R2.5/0	convex sided bowl with simple rim
144	BSR 828	5	RW	bowl	rim	fine			2.5YR6/6	convex sided bowl
145	BSR 792	2	RW	bowl	rim	v.fine	10R6/8	10R6/8	7.5YR7/6	convex sided bowl with internally thickened rim
146	BSR 825	5	RW	bowl	rim	v.fine	5YR6/2	10R4/4	10YR8/4	convex sided ,internally thickened rim
147	BSR 422	5	RWBS	bowl	rim	v.fine	10R5/3	10R5/3	10YR8/4	convex sided bowl with simple rim
148	BSR 820	5	RW	bowl	rim	v.fine	5YR7/6	5YR7/6	5YR7/8	convex sided bowl with simple rim
149	BSR 413	5	RW	bowl	rim	fine	10R6/6	10R6/6	5YR7/6	straight sided bowl with internally thickend rim
150	BSR 865	2	RW	bowl	rim	v.fine	10R5/6	10R5/6	7.5YR8/6	convex sided bowl with internally thickened
151	BSR 815	5	RW	bowl	rim	v.fine	10R4/3	10R4/3	2.5YR6/6	externally projected rim
152	BSR 146	11	**BW**	pot/jar	rim	fine	5YR8/3	5YR8/3	5YR8/3	beaked rim
153	BSR 267	8	RW	pot/jar	rim	v.fine	7.5YR8/4	2.5YR4/4	7.5YR8/4	short beaked rim
154	BSR 273	8	RW	pot/jar	rim	v.fine	7.5YR8/4	7.5YR8/4	7.5YR8/4	beaded rim with a carinated body

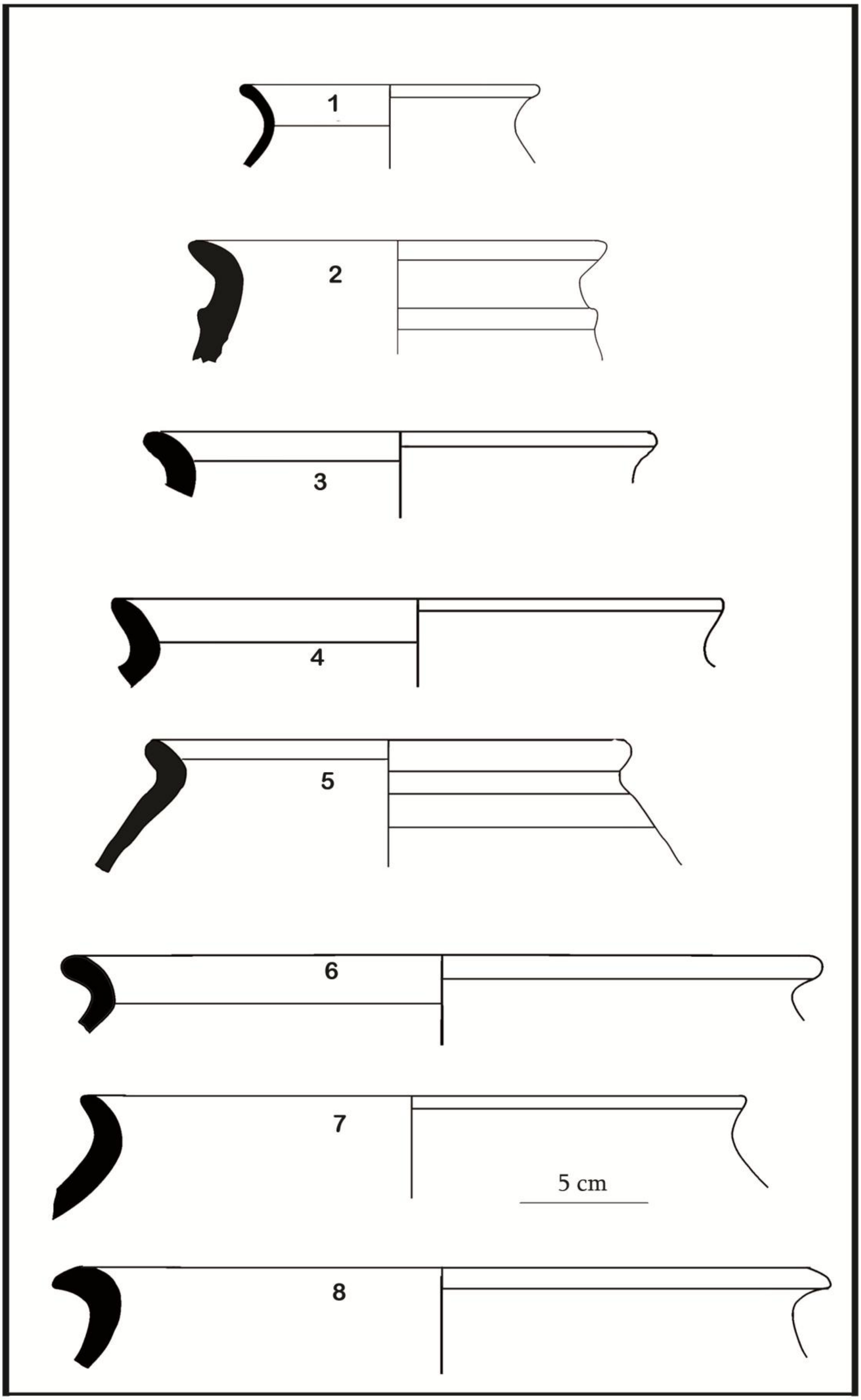


Figure 4.35 Phase- I Pots Bagasra: 1-5, 7-8 RW; 6 BW.

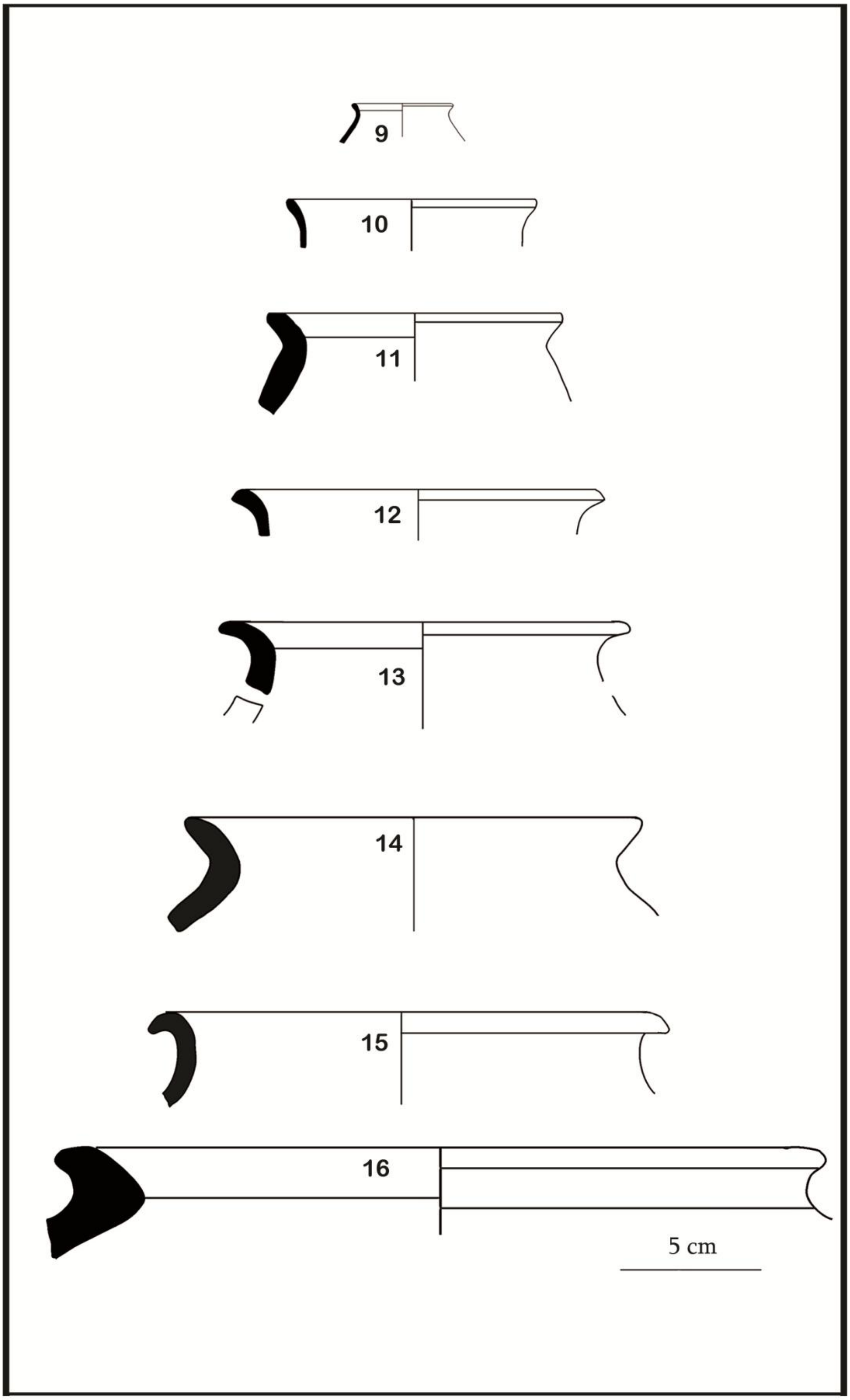


Figure 4.36 Phase- I Pots Bagasra: 9-16 RW.

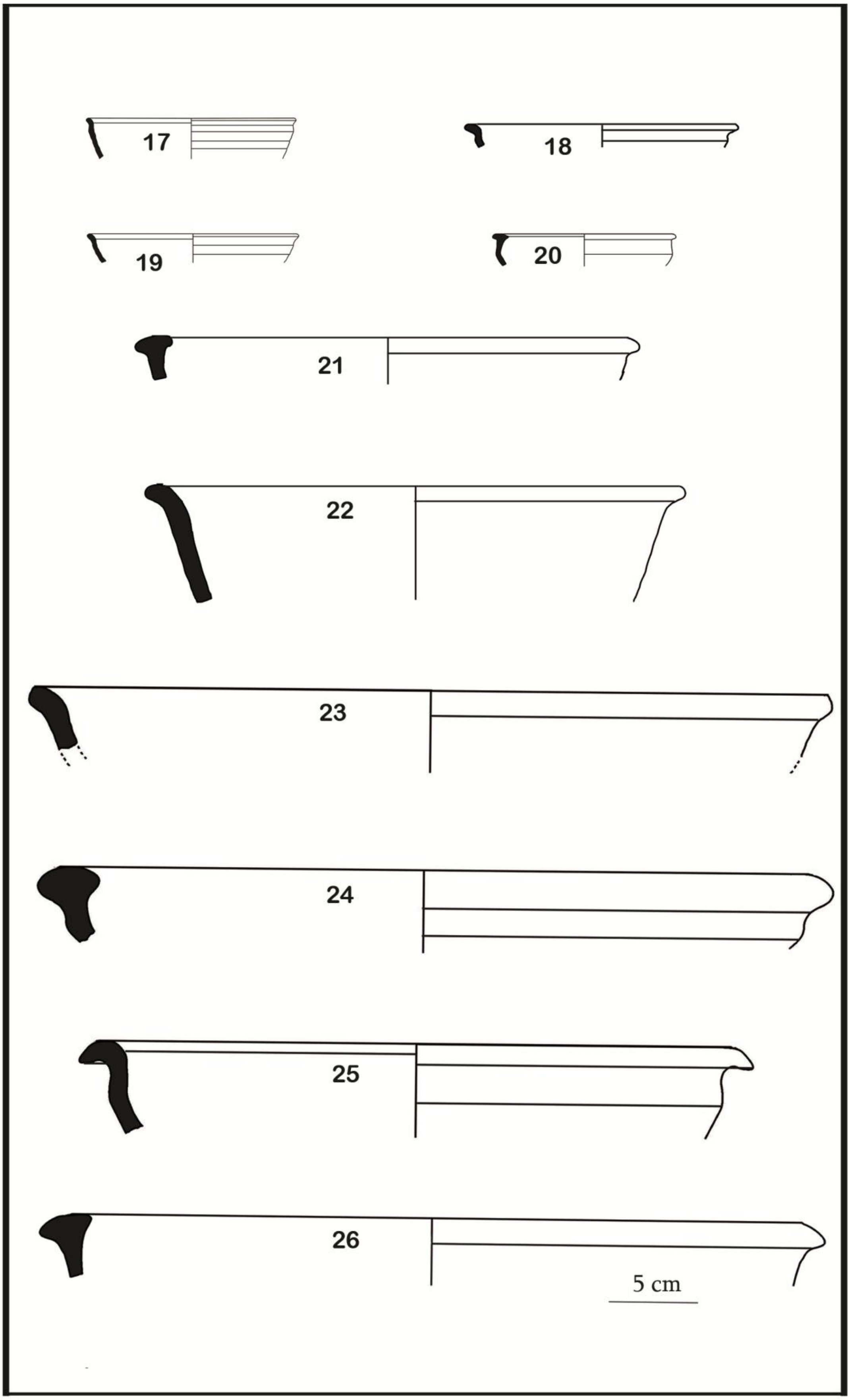


Figure 4.37 Phase- I Basin Bagasra: 17, 19, 22- 26 RW; 18 RWBS; 2, 4 BW.

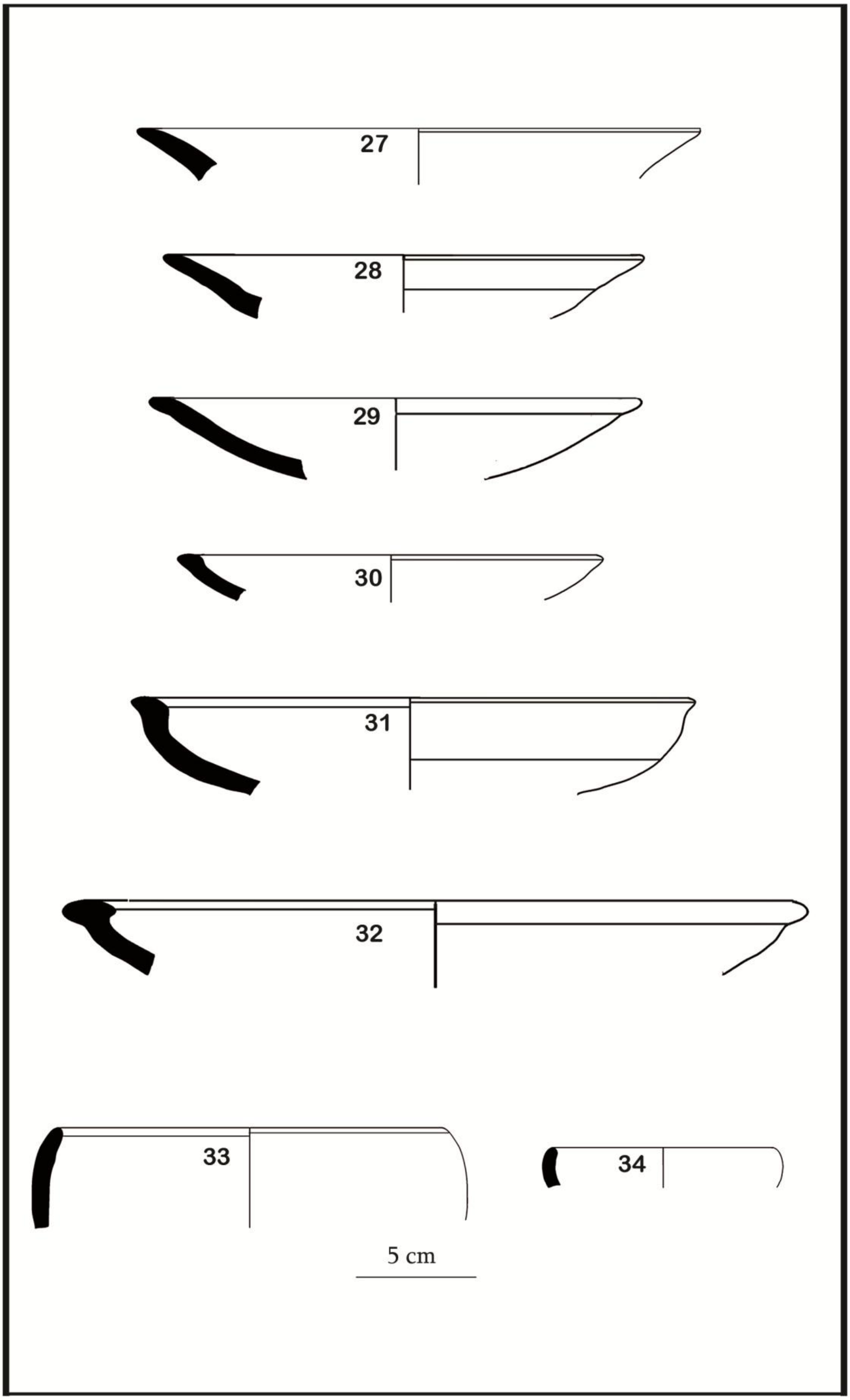


Figure 4.38 Phase- I Dish in Bagasra: 28- 32 RW; 27 RWBS; Bowl: 33, 34 RW.

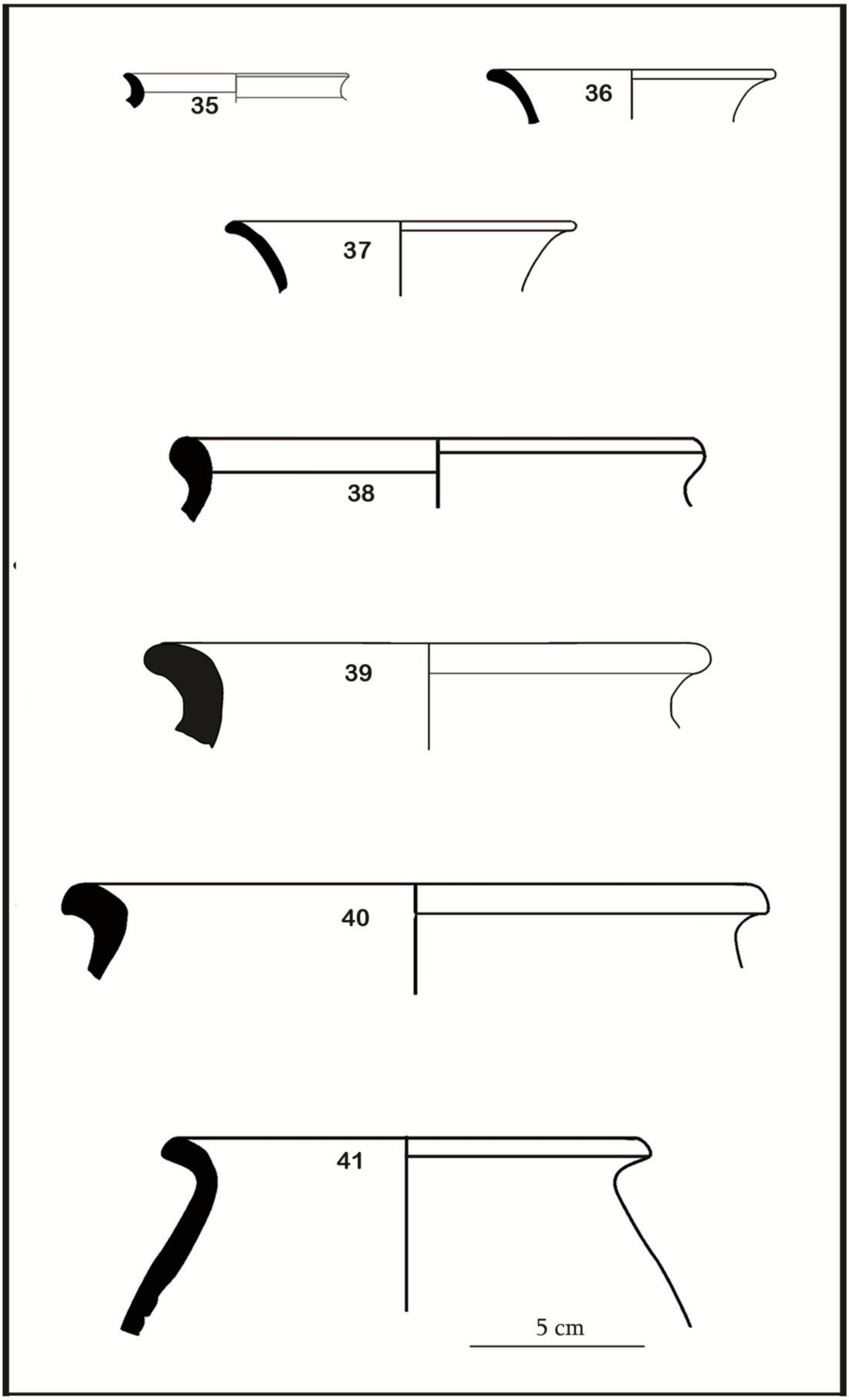


Figure 4.39 Phase- II Pots Bagasra: 35-41 RW.

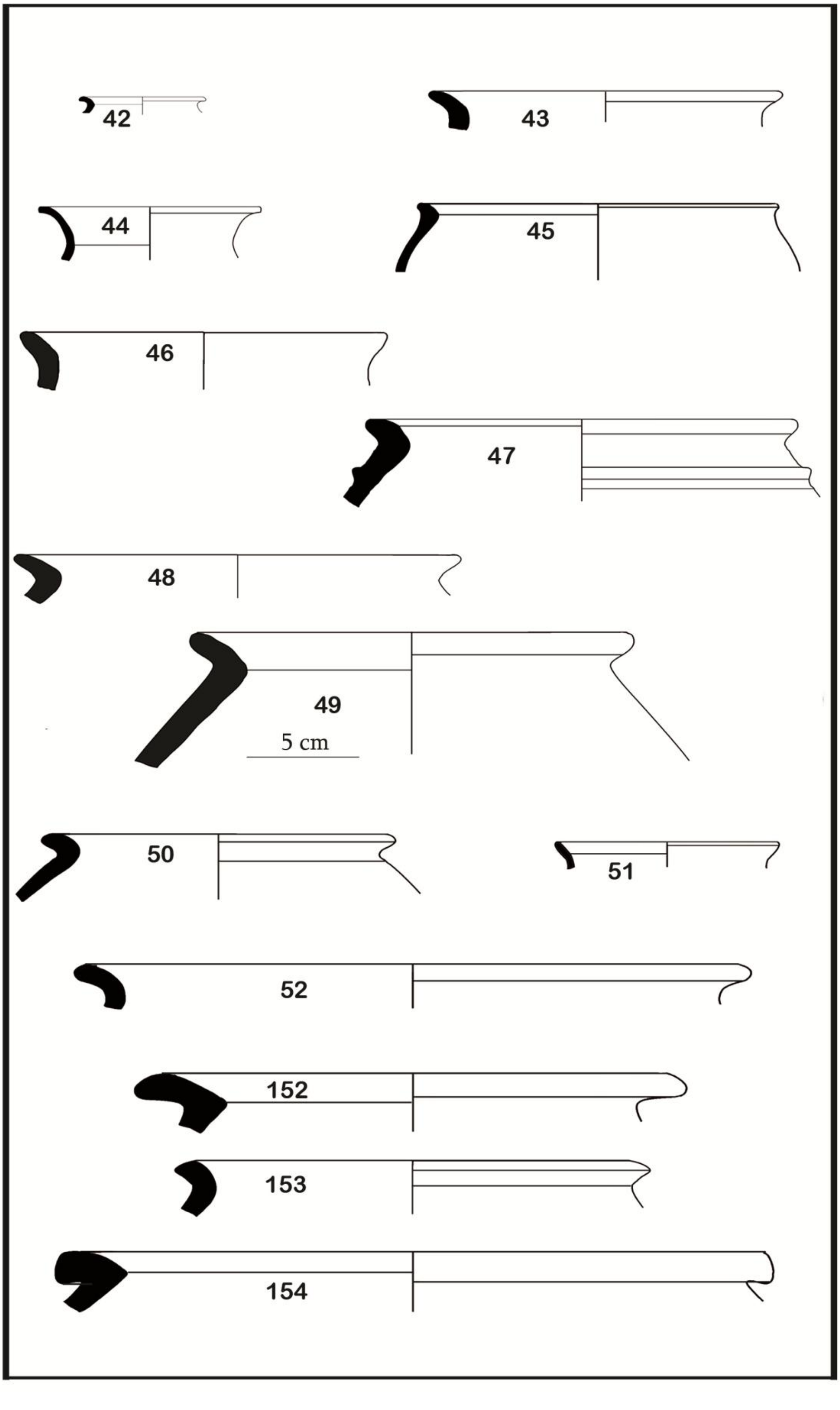


Figure 4.40 Phase-I I Pots in Bagasra: 42-44, 46-52, 152-154 RW; 45 RWBS.

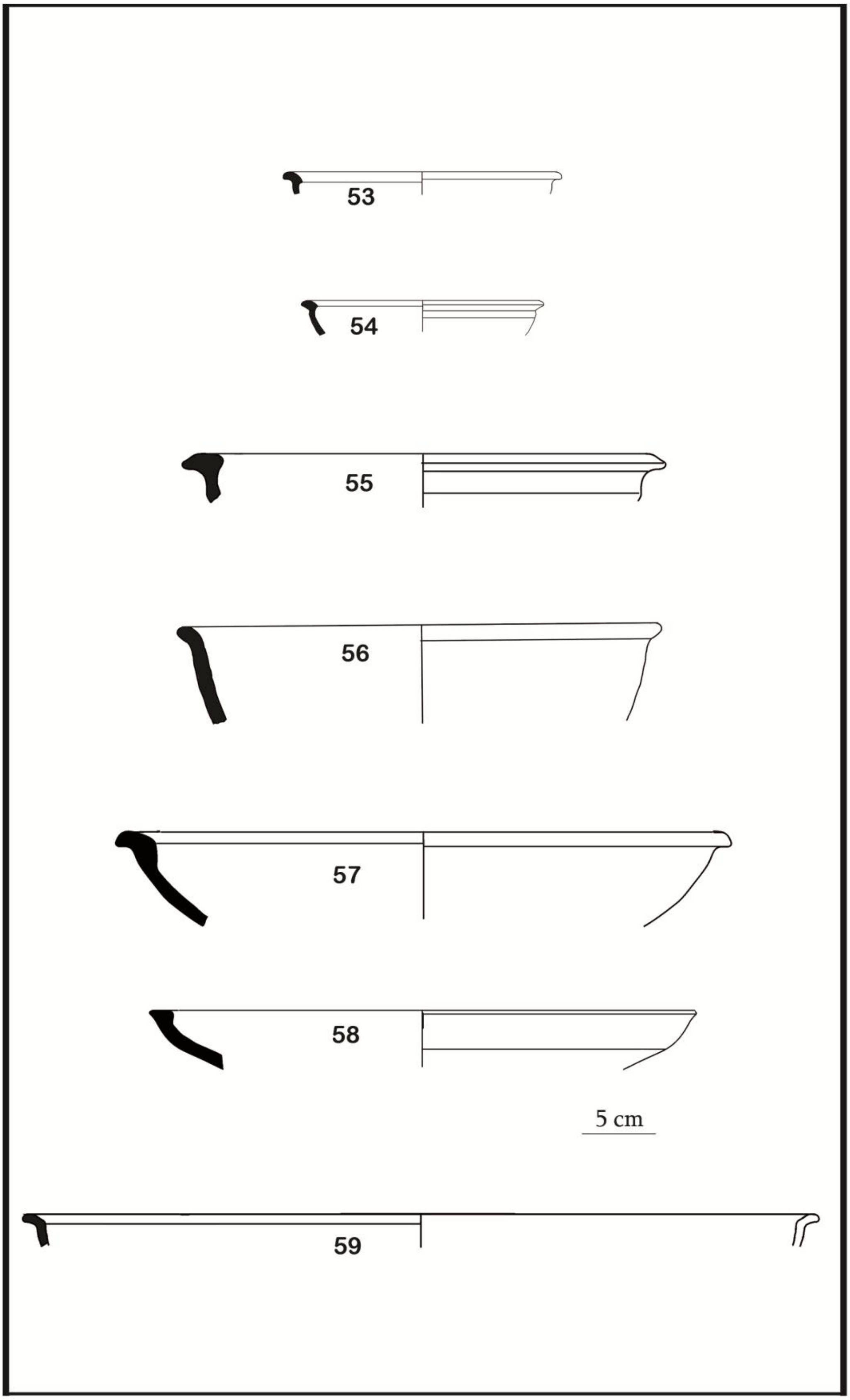


Figure 4.41 Phase- II Basin in Bagasra: 54, 55 RW; 53, 55 BW; Dish: 57, 58 RW; 59 RWBS.

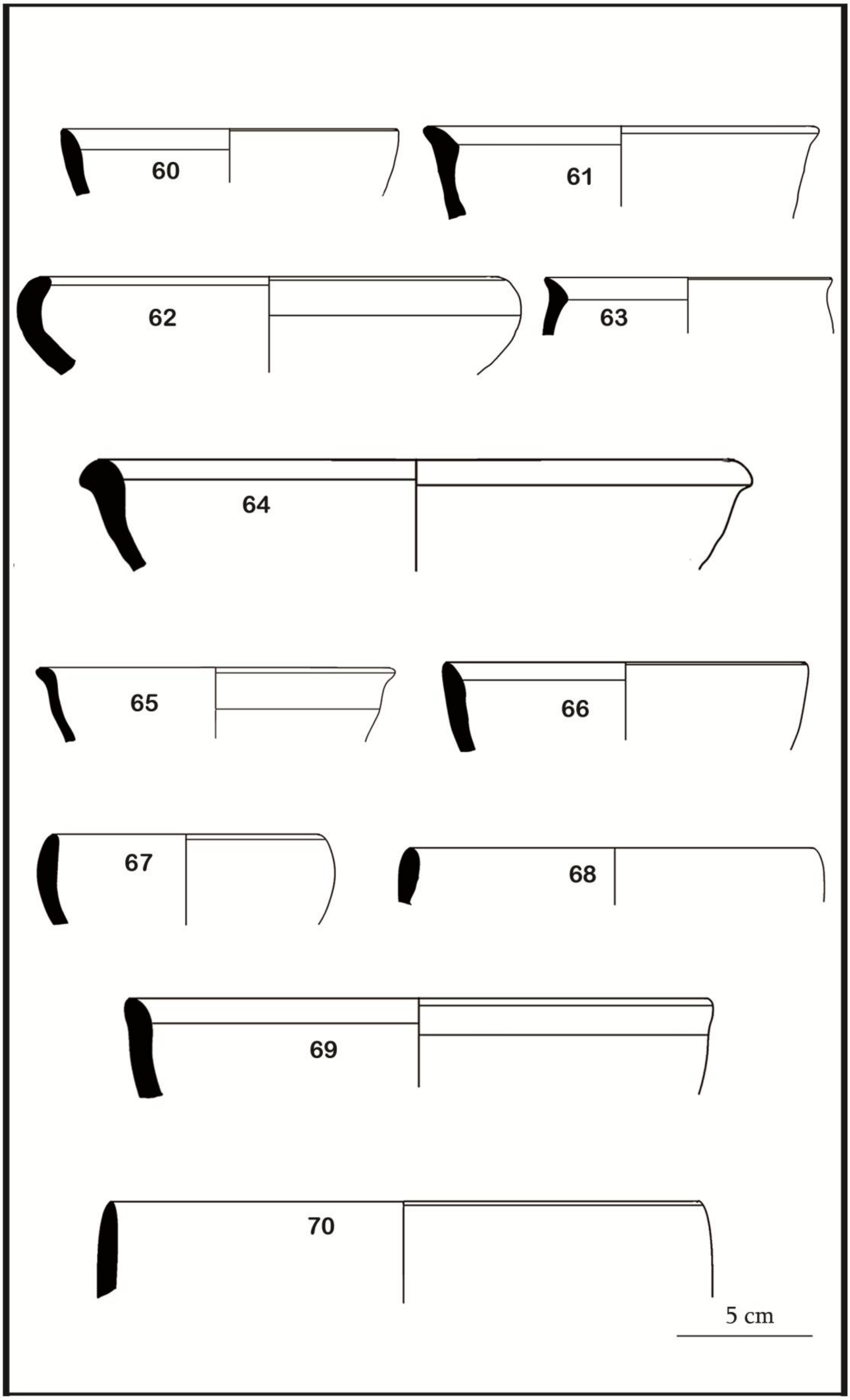


Figure 4.42 Phase- II Bowls Bagasra: 60-70 RW.

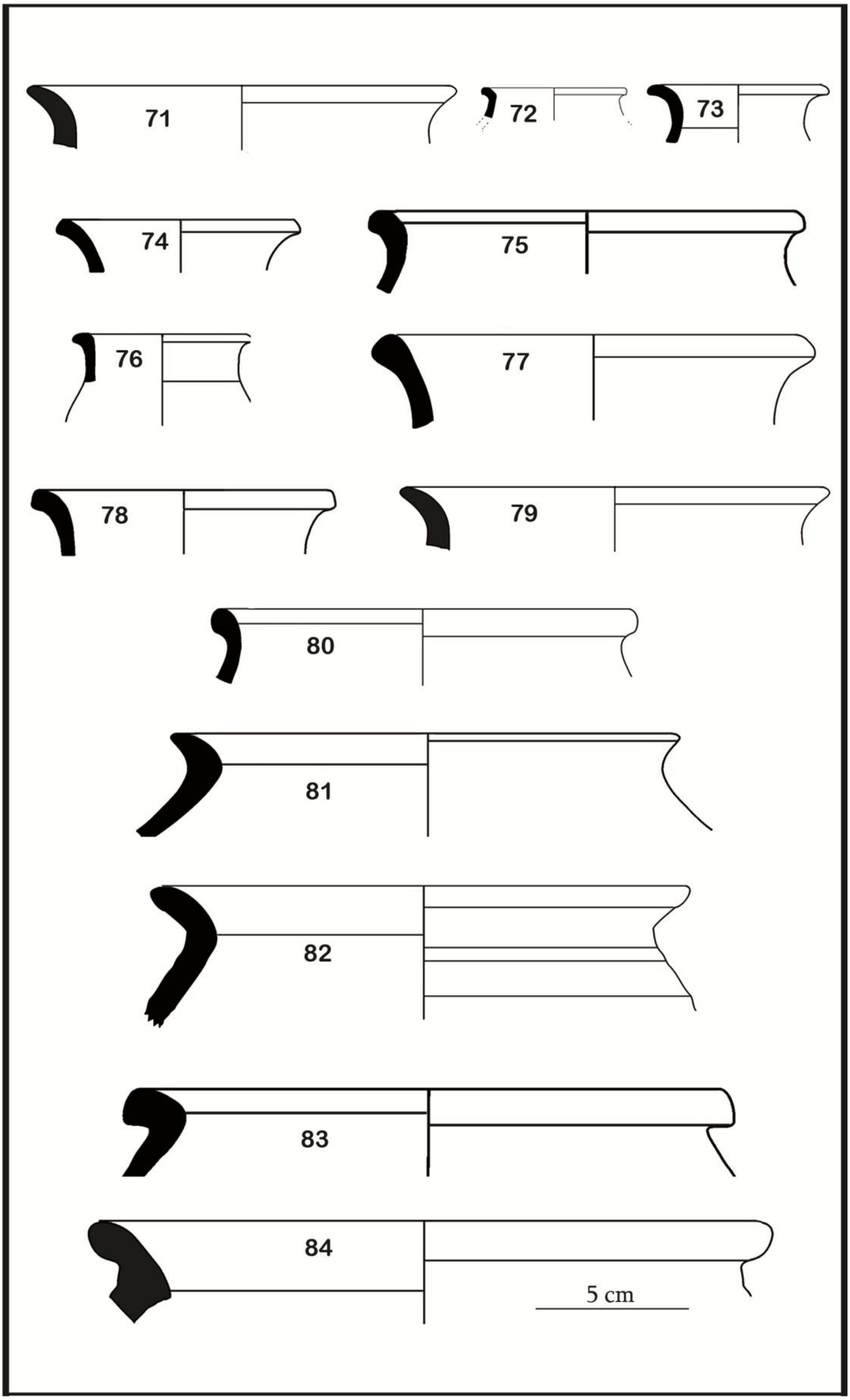


Figure 4.43 Phase-III Pots in Bagasra: 71, 74-79, 81-84 RW; 72, 73, 80 RWBS.

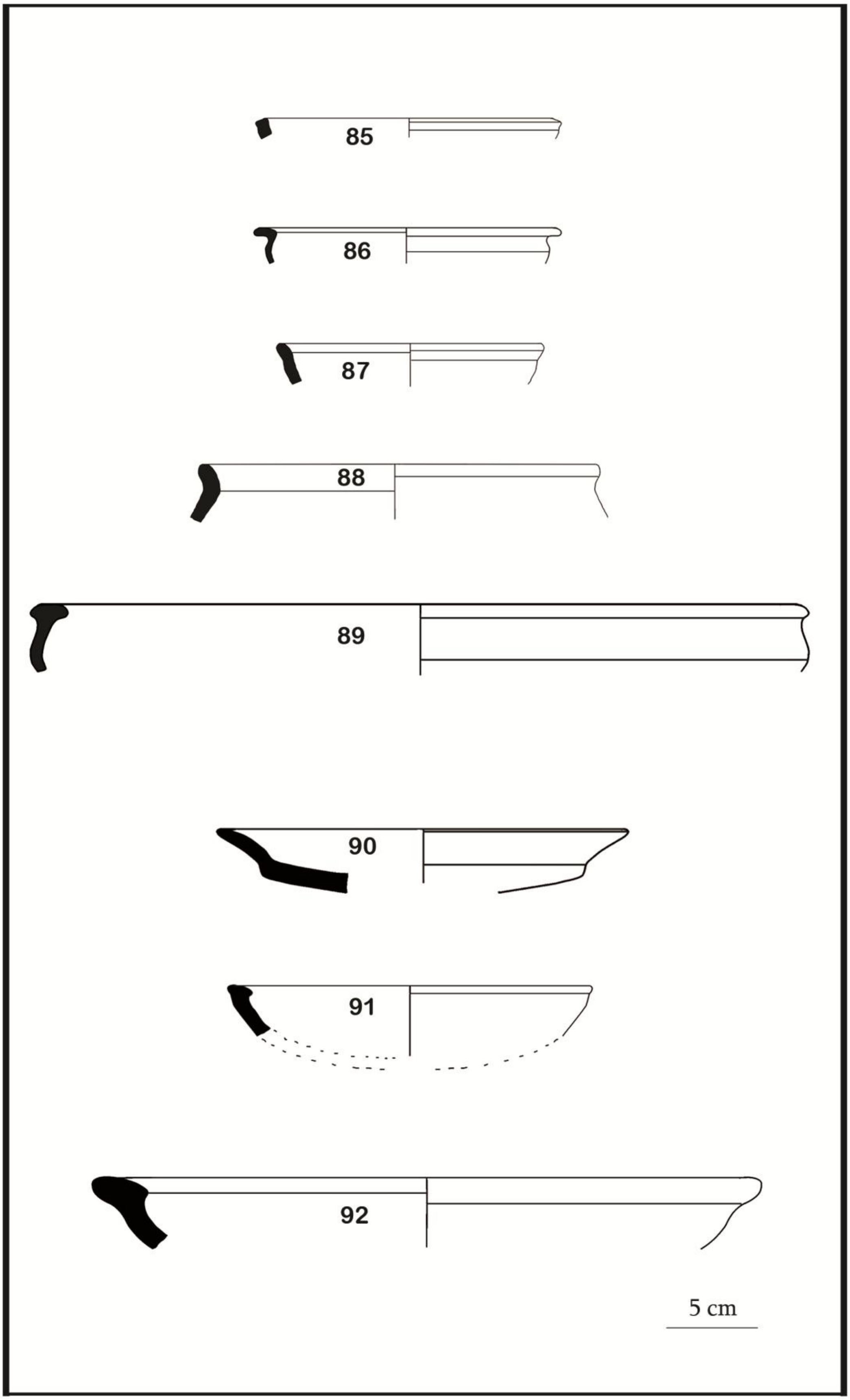


Figure 4.44 Phase-III Basin in Bagasra: 85- 89 RW; Dish: 90-92 RW.

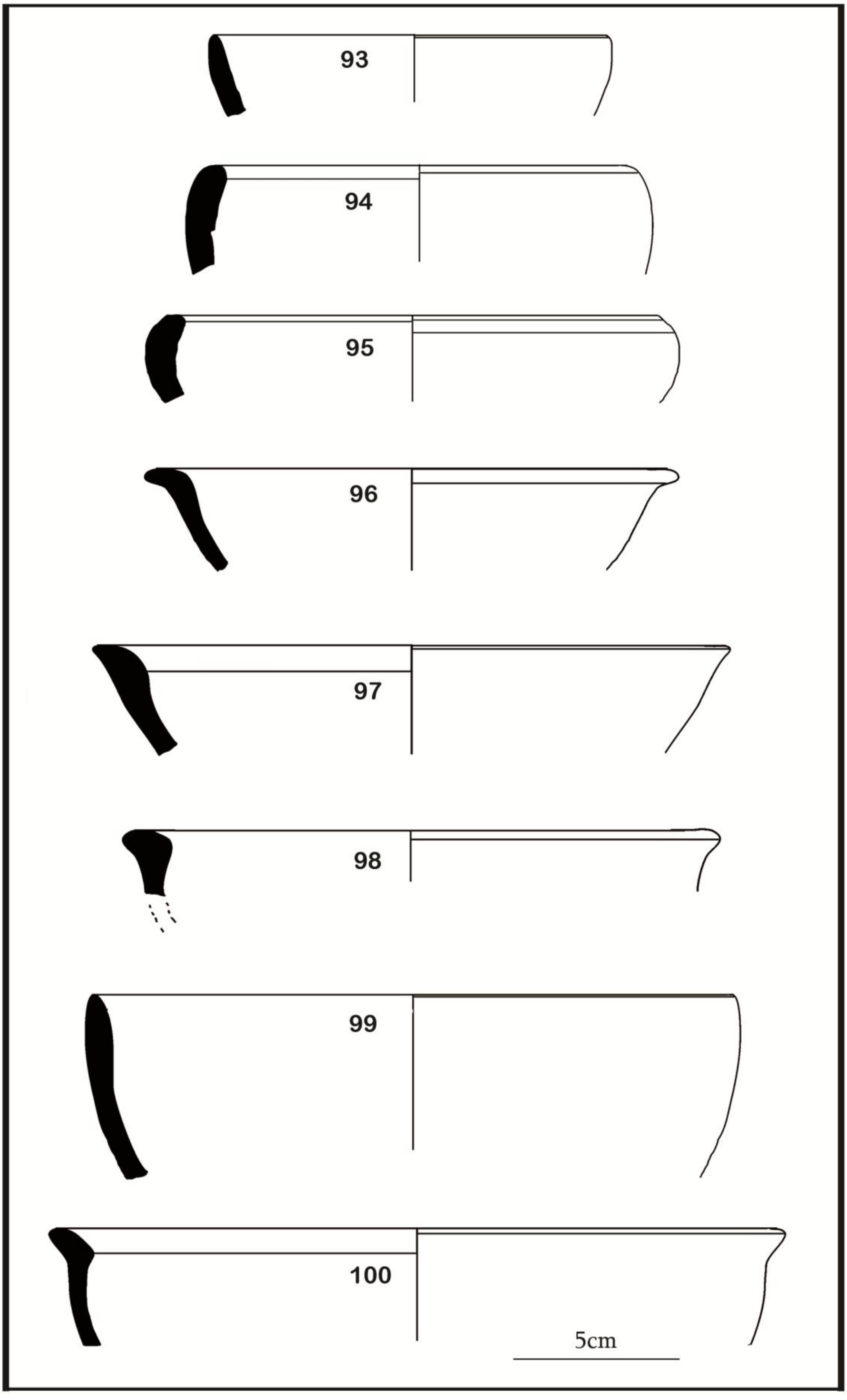


Figure 4.45 Phase- III Bowls in Bagasra: 93-95, 97-100 RW; 96 BW.

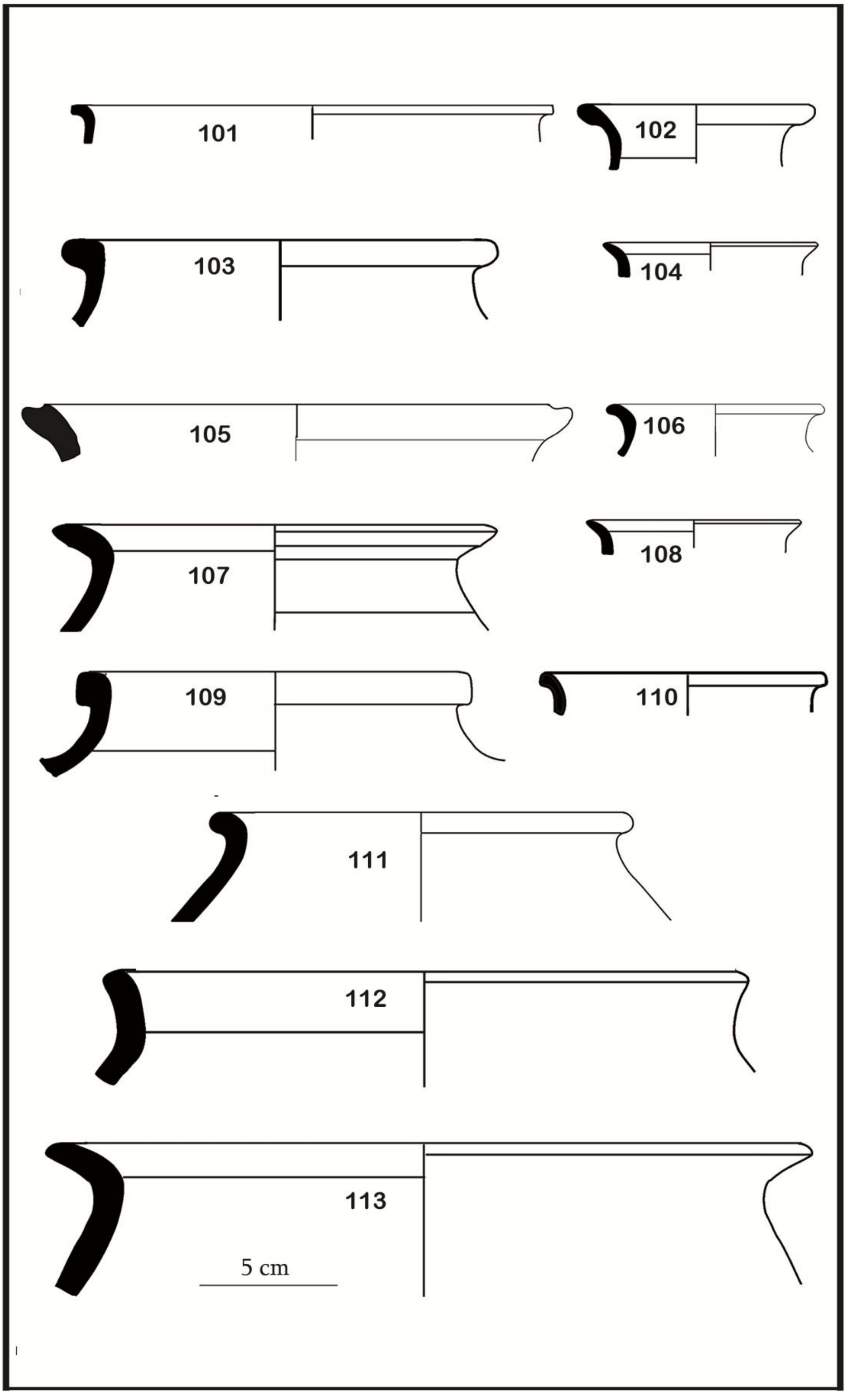


Figure 4.46 Phase-IV Pots in Bagasra: 101-108, 110, 112, 113 RW; 109, 111 BW.

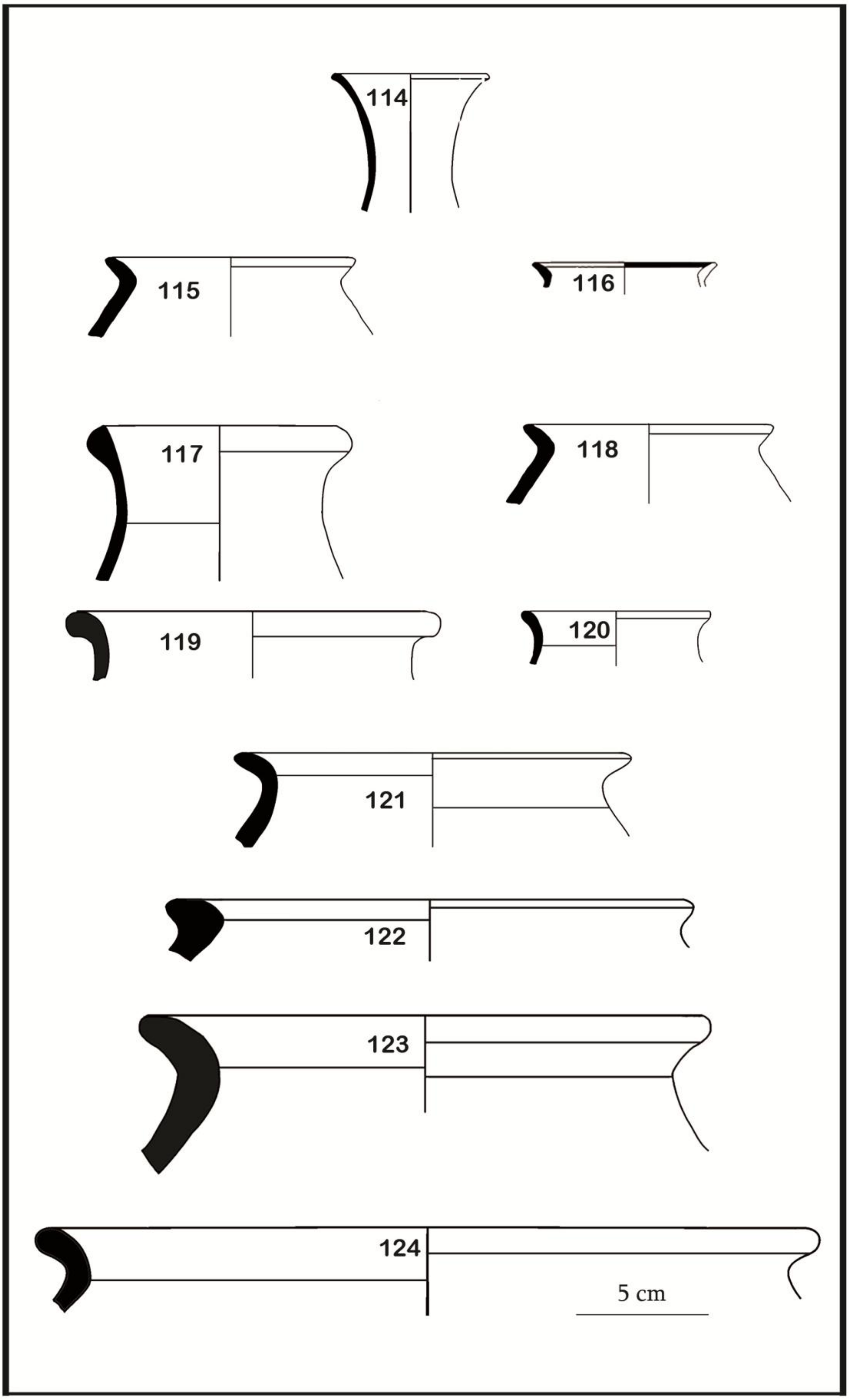


Figure 4.47 Phase-IV Pots in Bagasra: 114-124 RW.

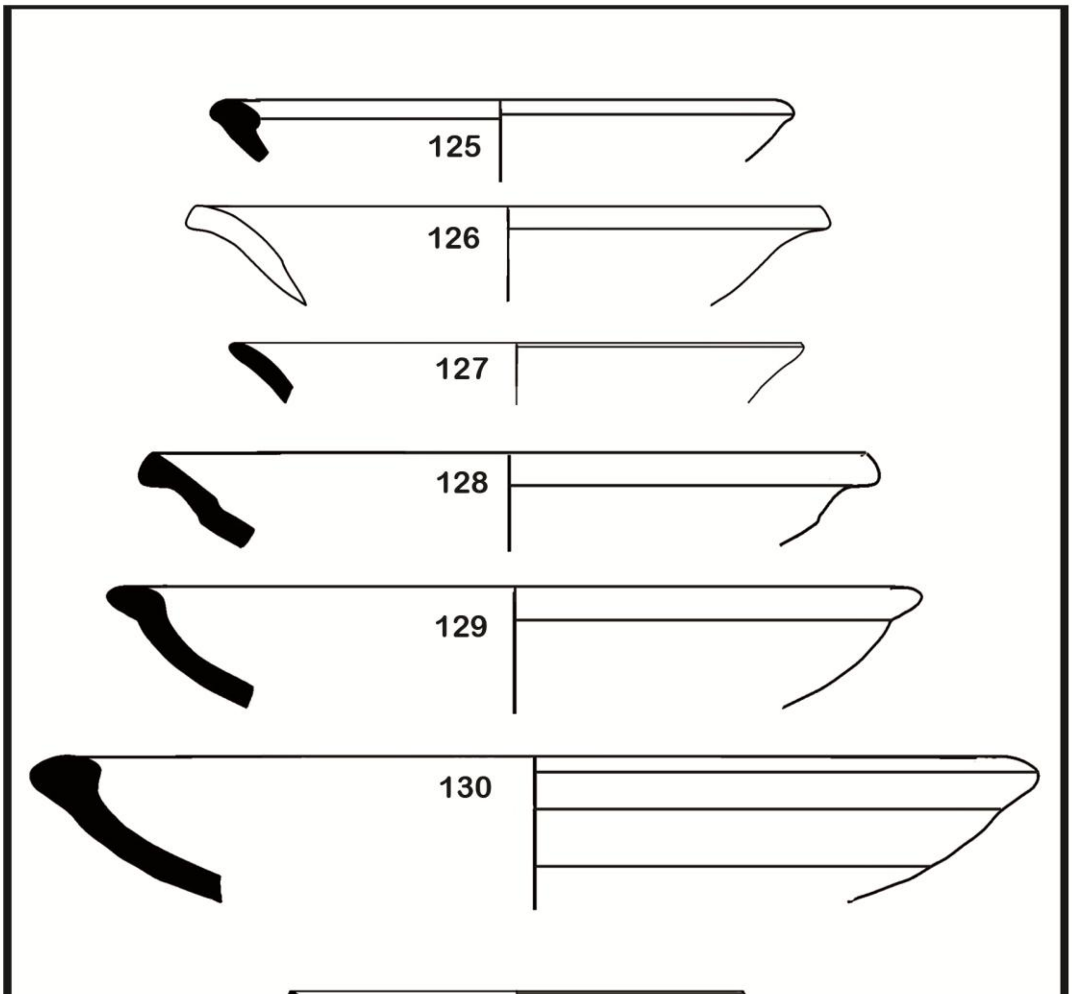


Figure 4.48 Phase- IV Dish in Bagasra: 125-130 RW; Bowl: 131-135 RW.

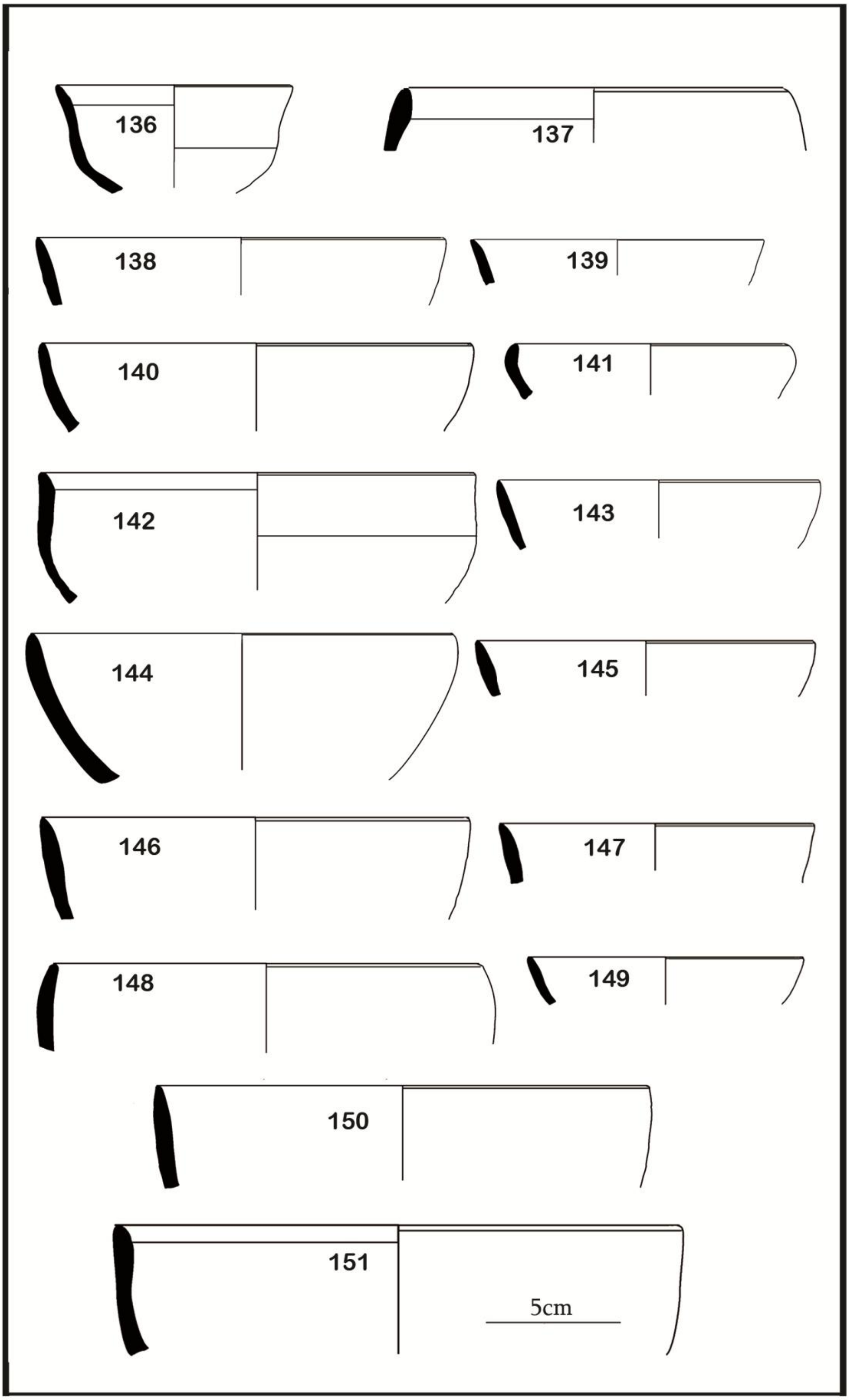


Figure 4.49 Phase- IV Bowl in Bagasra: 136-146, 148-151 RW; 147 RWBS.

Thus as a whole the typological analysis carried out at both the Trenches at Bagasra in association with associated finds (antiquities) and structural remains clearly indicate the ceramic tradition of the site. Here Red Ware remains the most dominant ware in the entire assemblage. The other major Wares include the RWBS, BW and BWRS. All these Wares vary in their external texture and are available from very fine to coarse category. The textural analysis shows that 60 to 70% of the total assemblage falls in the category of very fine to fine fabric.

As far as the functional division is concerned pots are the prime shapes available, also supplemented with other major shapes like bowls, basins and dishes. In total the percentage of the ceramics increases towards phase IV while the shapes started losing its variants except in case e of pots. Pots, Basins and Dishes are available in small, Medium and in large sizes while bowls and other shapes are available in small to medium sizes. As far as the rim forms are concerned everted rim, externally projected, drooping or beaked rims are the common ones. Internally beaked and undercut rims are also present in pots and basins. In case of bowls the convave sided bowls with simple rims or internally thickened rims dominates. Concave sided bowls, concavo-convex sided and incurved bowls were also present in the assemblge.

4.2 Section II (Thin Section Analysis)

The second as well as the most important stage of the research is the thin section analysis. Here, the samples after preliminary typological classification are allowed to go through a thin section study to assess the potentials of technology of production and distribution. It was used as a tool for answering the specific problem of provenance of raw material. As a preliminary step, physical tests like apparent porosity and hardness test were carried out to understand the technology of production as these experiments may able to throw some glimpses regarding the firing temperature or technique of clay processing in association with thin section microscopy.

The representative samples of both the Trenches of Bagasra were grouped based on their mineralogical and textural features. No previous Ware, external texture or any other physical or surface characters were considered during the process of grouping. The major parameters considered in the grouping are the petrographic features like the color of the matrix, size and shape of the inclusions, spheresity of the grains, pattern of grain size distribution, nature of the clay and voids and other textural and mineralogical features.

Thus, the analysis resulted in the creation of a number of fabric groups and sub groups which are in one way or other related to each other.

The following table (Table 4.4) shows the major fabric groups with its physical properties at different Trenches from Bagasra. Here, fabric groups were formed based on the petrographic features only and later compared it with the physical properties like the external texture, ware, layer, hardness etc to assess the validity and relationship between these groups. Initially fabric groups were devised trench wise and later mixed each other to form the general fabric group of Bagasra.

A close look at the table (Table 4.4) shows that the categorization of physical properties like porosity and hardness has some relationship exist as the hardness increases the porosity also increases. A range of 28 to 35% for hardness 6, 30 to 20% for hardness 5, 25 to 15% for hardness 4 and 20 to 5) for hardness 3 is observable. This may indicate that samples having high hardness are coarser varieties of different wares and does not received adequate or above 800 degree for firing or they are made in open air of less sophisticated kilns. The grouping also complementary with the textural and mineralogical grouping as it shows different physical features for different fabric groups.

Table 4.4 Summary of different fabric Groups from Trench Er13 and Eo3.

Sa No	Layer	Depth	Phase	Normal Ware	Revised Ware	Form	External Texture	Hardness	Porosity	Fabric Group
0.2	1	10cm	IV	RWBS	RWBS	undiagnostic	very fine	<6	2.2	A
0.5	7	370cm	III	BW	BW	dish on stand stem	fine	<4	13.9	A
0.6	6	340cm	III	BW	BW	pot rim	very fine	<4	14.3	A
351	5	165cm	III	RW	RW	pot/jar rim	very fine	<4	7.21	A
735	6	395cm	III	BW	BW	basin rim	fine	<3	16.16	A
26	17	775cm	I	RW	RW	pot/jar rim	medium coarse	<3	25.91	A1
50	15	700cm	I	RWBS	RWBS	pot/jar base	very fine	<3	6.6	A1
91	13	600cm	I	GRW	RW	pot/jar rim	medium	<3	17.13	A1
106	12	570cm	II	RW	RW	pot/jar rim	coarse	<4	25.42	A1
154	11	540cm	II	RWBS	RWBS	basin rim	very fine	<3	7.14	A1
165	11	540cm	II	RW	RW	pot/jar base	medium	<3	24.23	A1
393	5	140cm	III	RW	RW	bowl rim	fine	<3	12.63	A1
46	15	700cm	I	RW	RW	pot/jar rim	coarse	<3	33.97	B
181	11	540cm	II	RWBS	RWBS	pot/jar base	very fine	<3	12.89	B
233	9	490cm	II	BW	BW	pot/jar rim	very fine	<3	9.28	B
411	5	140cm	III	RWBS	RWBS	pot/jar base	very fine	<5	1.09	B
442	4	110cm	IV	RW	RW	pot/jar rim	medium	<4	14.26	B
453	4	110cm	IV	BW	BW	basin rim	very fine	<3	3.49	B
639	2	20cm	IV	RW	RW	pot rim	fine	<4	18.67	B
722	6	340cm	III	RW	RW	pot/jar rim	fine	<3	13.46	B
728	6	340cm	III	RWBS	RWBS	por/jar base	fine	<4	21.27	B

739	6	395cm	III	RW	RW	bowl rim	medium	<3	6.52	B
0.1	3	70cm	IV	RWBS	RWBS	undiagnostic	fine	<5	13.24	C
3	17	775cm	I	RW	RW	bowl rim	very fine	<4	3.43	C
12	17	775cm	I	BW	BW	dish on stand base	fine	<3	25.67	C
35	16	745cm	I	BW	BW	pot/jar rim	fine	<3	15.59	D
48	15	700cm	I	BWRS	BWRS	dish on stand base	very fine	<3	5.9	D
109	12	570cm	II	RW	RW	pot/jar rim	medium	<4	20.9	D
702	6	200cm	III	GRW	RW	pot/jar rim	medium coarse	<4	20.15	D
21	17	775cm	I	BW	BW	pot/jar base	fine	<3	11.04	D1
23	15	700cm	I	BW	BW	undiagnostic	fine	<3	16.65	D1
24	17	775cm	I	RW	RW	pot/jar rim	fine	<3	14.4	D1
78	14	625cm	I	RW	RW	pot/jar rim	coarse	<3	30.19	D1
150	11	540cm	II	RWBS	RWBS	dish rim	fine	<3	15.42	D1
236	9	240cm	II	RW	RW	dish on stand base	fine	<3	20.91	D1
247	9	490cm	II	GRW	RW	basin rim	medium coarse	<4	25.5	D1
426	5	140cm	III	RW	RW	bowl rim	very fine	<3	6.17	D1
0.3	4	110cm	IV	RWBS	RWBS	undiagnostic	fine	<6	6.74	E
0.7	5	155cm	III	BW	BW	undiagnostic	fine	<4	15.72	E
439	4	110cm	IV	BW	BW	basin rim	very fine	<3	6.51	E
446	4	110cm	IV	RW	RW	bowl rim	very fine	<3	4.97	E
460	3	70cm	IV	BW	BW	pot/jar rim	very fine	<3	10.15	E
480	3	70cm	IV	RW	RW	bowl base	very fine	<5	4.54	E
673	1	18cm	IV	BW	BW	pot base	fine	<3	16.05	E
678	1	18cm	IV	RW	RW	bowl rim	fine	<3	5.07	E
713	6	340cm	III	RWBS	RWBS	dish on stand base	fine	<6	22.86	E

729	6	395cm	III	RWBS	RWBS	pot/jar rim	very fine	<3	8.93	E
42	15	700cm	I	GRW	RW	dish rim	fine	<3	9.13	F
0.4	3	70cm	IV	RWBS	RWBS	undiagnostic	fine	<5	6.75	G
44	15	700cm	I	RWBS	RWBS	basin rim	very fine	<5	13.39	G
133	12	570cm	II	BW	BW	dish rim	very fine	<3	8.05	G
146	11	540cm	II	BW	BW	pot/jar rim	very fine	<3	6.69	G
196	10	510cm	II	RW	RW	dish on stand base	very fine	<3	5.4	G
240	9	490cm	II	RWBS	RW	pot/jar base	fine	<3	16.06	G
36	16	745cm	I	RW	RW	pot/jar base	very fine	<3	2.42	H
90	13	600cm	I	BW	RWBS	pot/jar base	fine	<3	13.76	H
94	12	570cm	II	RWBS	RWBS	dish rim	fine	<3	12.76	H
162	11	540cm	II	Bichrome	RW	pot/jar rim	very fine	<3	13.22	H
447	4	110cm	IV	RW	RW	basin rim	medium coarse	<3	13.43	H
448	3	70cm	IV	RW	RW	pot/jar rim	fine	<3	7.87	H
284	7	370cm	II	CSW	BW	bowl rim	fine	<4	13.31	I
449	4	110cm	IV	RW	RW	pot/jar rim	medium coarse	<4	24.97	J
726	6	340cm	III	RW	RW	pot/jar rim	medium	<5	12.97	J
756	6	395cm	III	RW	RW	pot/jar rim	medium coarse	<6	24.13	J

Trench Eo3

No.	**Layer**	**Depth**	**Phase**	**Norma Ware**	**Revised Ware**	**Shape**	**External Texture**	**Hardness**	**Porosity**	**Fabric groups**
1055	2	30cm	IV	RW	RW	basin rim	medium coarse	<4	16.24	A
1104	2	40cm	IV	RW	RW	pot/jar rim	coarse	<4	15.61	A
1209	2	55cm	IV	G RW	RW	pot/jar rim	coarse	<5	34.83	A

1305	2	60cm	IV	BWRS	BWRS	basin rim	fine	<3	20.27	A
1408	3	80cm	III	RW	RW	pot/jar rim	coarse	<5	26.28	A
1504	4	100cm	III	RW	RW	pot/jar rim	medium coarse	<4	27.5	A
1711	4	135cm	III	RW	RW	pot/jar rim	medium	<3	22.82	A
2262	10	260cm	I	GRW	RW	bowl rim	medium coarse	<5	29.23	**A**
1002	2	30cm	IV	RW	RW	bowl rim	medium	<3	15.2	B
1012	2	30cm	IV	RW	RW	dish rim	fine	<3	8.28	B
1729	5	140cm	III	RW	RW	pot/jar rim	very fine	<3	4.48	B
1780	5	160cm	III	RW	RW	basin rim	fine	<3	18.25	B
2053	7	210cm	III	RWBS	RWBS	dish rim	fine	<4	16.53	B
2097	8	220cm	I	RW	RW	basin rim	fine	<3	13.62	B
2199	8	235cm	I	RWBS	RWBS	pot/jar rim	fine	<3	12.85	B
1019	2	30cm	IV	RW	RW	pot/jar rim	medium coarse	<4	26.83	B1
1020	2	30cm	IV	RW	RW	bowl rim	fine	<3	12.85	C
1334	3	70cm	III	RW	RW	pot/jar rim	fine	<4	12.56	C
1056	2	30cm	IV	RWBS	RWBS	pot/jar rim	very fine	<3	8.52	D
1345	3	70cm	III	RW	RW	bowl rim	medium	<3	6.3	D
1436	3	110cm	III	BW	BW	pot/jar rim	fine	<3	18.13	D
1779	5	160cm	III	RW	RW	pot/jar rim	medium	<5	15.62	D
1866	5A pit 1	230cm	III	GRW	RW	pot/jar rim	medium coarse	<4	26.22	D
2234	9	250cm	I	GRW	BWRS	basin rim	fine	<3	17.64	D
1311	2	60cm	IV	BWRS	BWRS	pot/jar rim	very fine	<4	4.58	D1
1465	3	100 cm	III	RW	RW	pot/jar rim	coarse	<5	21.62	D1
1652	4	140cm	III	GRW	RW	bowl rim	coarse	<6	35.12	D1

1009	2	30cm	IV	GRW	RW	dish on stand base	very fine	<3	15.2	E
1029	2	30cm	IV	RW	RW	pot/jar rim	medium	<3	15.85	E
1176	2	40cm	IV	BW	BW	bowl base	fine	<4	26.85	E
1231	2	70cm	IV	BW	BW	pot/jar rim	very fine	<3	13.56	E
1310	2	60cm	IV	BWRS	BWRS	basin rim	fine	<4	16.27	E
1402	3	80cm	III	RWBS	RWBS	pot/jar rim	fine	<5	18.26	E
1981	5A pit 1	225cm	III	BWRS	BWRS	pot/jar rim	fine	<3	13.28	E
2037	7	210cm	III	RWBS	RWBS	basin rim	fine	<3	21.62	E
2045	7	210cm	III	RW	RW	bowl rim	fine	<3	23.81	E
2128	8	225cm	I	RWBS	RWBS	dish on stand base	fine	<3	13.75	E
2138	8	225cm	I	RW	RW	basin rim	medium	<3	22.86	E
2255	9	250cm	I	BW	BW	pot/jar rim	fine	<5	16.65	E
1425	3	110cm	III	RWBS	RWBS	basin rim	fine	<5	15.93	E1
1771	5	160cm	III	RW	RW	basin rim	coarse	<6	28.93	E1
1851	5A pit 1	230cm	III	RW	RW	pot/jar rim	coarse	<4	34.28	E1
2054	7	210cm	III	RW	RW	basin rim	medium	<4	20.72	E1
2071	7	210cm	III	RW	RW	bowl rim	medium coarse	<5	34.62	E1
2225	9	250cm	I	RWBS	RWBS	pot/jar rim	fine	<3	11.17	E1

4.2.1 Major Fabric and Textural Groups from Bagasra

In order to understand the major changes happening spatially and temporally at the site, the Petrographic samples from the trenches analyzed separately and its features were recorded. The analysis revealed ten groups (A, B, C, D, E, F, G, H, I and J) and two subgroups(A1 and D1) for trench Er13 and five major groups (A, B, C, D, E) and two sub group (B1 and D1) for Eo3. The grouping has been done based on the mineralogical features (quartz group, feldspar group, quartz-feldspar group, calcite group) and presence or absence of major inclusions while textural features of tempering materials (silt, very fine sand, fine sand, medium sand and coarse sand) were given importance in determining the sub groups. Description and chart of the individual groups were prepared and discussed separately (see Appendix Table 4 and 5).

The comparison or clubbing of the samples of both the trenches (Table 4.5) revealed mainly seven compositions in which quartz, feldspar, calcite and mica are the major components. In combination the fabric groups fall in the categories of quartz- feldspar group, quartz-calcite group, feldspar-quartz group, feldspar-calcite group, mica-feldspar group, feldspar-mica group and calcite –feldspar group. As far as the major textural grouping s of the total samples is concerned they are arranged as silt dominant group, very fine sand, fine sand and medium sand group. The analysis revealed that there no characteristic change in the fabric and textural groups of both these Trenches and are absolutely the same.

Table 4.5 Distribution of major Mineral and Textural features at different fabric Groups from Trench Er13 and Eo3

Trench	Fabric Groups	Minerals			Texture			Mineral Dominant	Temper Dominant
		1	2	3	1	2	3		
Eo3	A	Quartz	Alt feldspar	Calcite	M.S	Silt	F.S	Quartz+Feldspar	M.S
Eo3	B	Alt feldspar	Quartz	Calcite	Silt	V.F.S	F.S	Quartz+Feldspar	Silt
Eo3	B1	Alt feldspar	Quartz	Calcite	Silt	V.F.S	V.F.S	Feldspar+Quartz	Silt
Eo3	C	Mica	Feldspar	Calcite	Silt	V.F.S	V.F.S	Mica+Feldspar	Silt
Eo3	D	Alt feldspar	Quartz	Calcite	M.S	F.S	V.F.S	Feldspar+Quartz	M.S
Eo3	D1	Quartz	Feldspar	Calcite	Silt	F.S	V.F.S	Feldspar+Quartz	Silt
Eo3	E	Alt feldspar	Calcite	Quartz	V.F.S	Silt	F.S	Quartz+Feldspar	V.F.S
Eo3	E1	Feldspar	Quartz	Calcite	Silt	V.F.S	F.S	Quartz+Feldspar	Silt
Er13	A	Quartz	Alt feldspar	Calcite	M.S	V.F.S	Silt	Quartz+Feldspar	M.S
Er13	A1	Quartz	Alt feldspar	Calcite	Silt	F.S	M.S	Quartz+Feldspar	Silt
Er13	B	Alt feldspar	Calcite	Quartz	Silt	F.S	M.S	Quartz+Calcite	Silt
Er13	C	Alt feldspar	Quartz	Olivine	F.S	Silt	V.F.S	Feldspar+Quartz	F.S
Er13	D	Alt feldspar	Quartz	Calcite	F.S	M.S	Silt	Feldspar+Quartz	F.S
Er13	D1	Quartz	Feldspar	Calcite	M.S	F.S	Silt	Feldspar+Quartz	M.S
Er13	E	Feldspar	Calcite	Quartz	Silt	V.F.S	F.S	Feldspar+Calcite	Silt
Er13	F	Feldspar	Calcite	Mica	Silt	V.F.S	F.S	Feldspar+Mica	Silt
Er13	G	Feldspar	Quartz	Calcite	Silt	F.S	F.S	Quartz+Feldspar	Silt
Er13	H	Quartz	Feldspar	Calcite	M.S	F.S	F.S	Quartz+Feldspar	M.S
Er13	I	Calcite	Feldspar	Quartz	Silt	V.F.S	F.S	Calcite+Feldspar	Silt
Er13	J	Quartz	Calcite	Feldspar	F.S	Silt	F.S	Quartz+Calcite	F.S

The final fabric groups of Bagasra has been devised after mixing all the fabric groups identified from both the Trenches (Er13 and Eo3) from Bagasra. The newly devised fabric groups of Bagasra as follows.

Group A

The samples falling in this group include 1345 (Red Ware), 1866 (Red Ware), 1779 (Red Ware), 447 (Red Ware) 91 (Red Ware) 488 (Red Ware), 78 (Red Ware), 1056 (Red Ware with Buff Slip), 35 (Buff Ware), 154(Red Ware with Buff Slip) and 2234 (Buff Ware with Red slip).

This group is primarily feldspar –quarts fabric with lot of other minerals as inclusions and is tempered with medium to coarse sand (Figure 4.51). The color of the matrix is dark brown. The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 20 to 60%. The size of the largest grain of nonplastic inclusions ranges from 150 to 300 microns (Plate 4.1). They are angular to sub angular in shape. The voids are present and most of them are grain fall outs. (Figure 4.52) shows the apparent porosity of the fabric group as well. The clay is ferruginous mixed with calcareous inclusions. Feldspar (altered and fresh) dominates the section with quartz as the second mineral. Other minerals present mainly include, calcite, olivine, augite etc. (Figure 4.50). Few iron oxide patches along with rocks are also visible in the section. A notable feature is the presence of argillaceous inclusions. The fabric is poorly sorted and the grain size distribution is nearly bimodal. The particle does not show any particular orientation as such.

Group A1

The samples falling in this group include 1425 (RWBS), 1851 (RW), 2225 (BWRS), 1771 (RW), 2054 (RW), 2071 (RW), 1652 (RW), and 1311 (BWRS).

It's a feldspar-quartz fabric with silt to fine sand as the tempering material (Figure 4.51). The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The color of the matrix varies from light brown to deep red. The frequency of nonplastic inclusions ranges from 40 to 50%. Most of the inclusions are present as the part of the matrix. The size of the largest grain of nonplastic inclusions ranges from 150 to 200 microns (Plate 4.2).

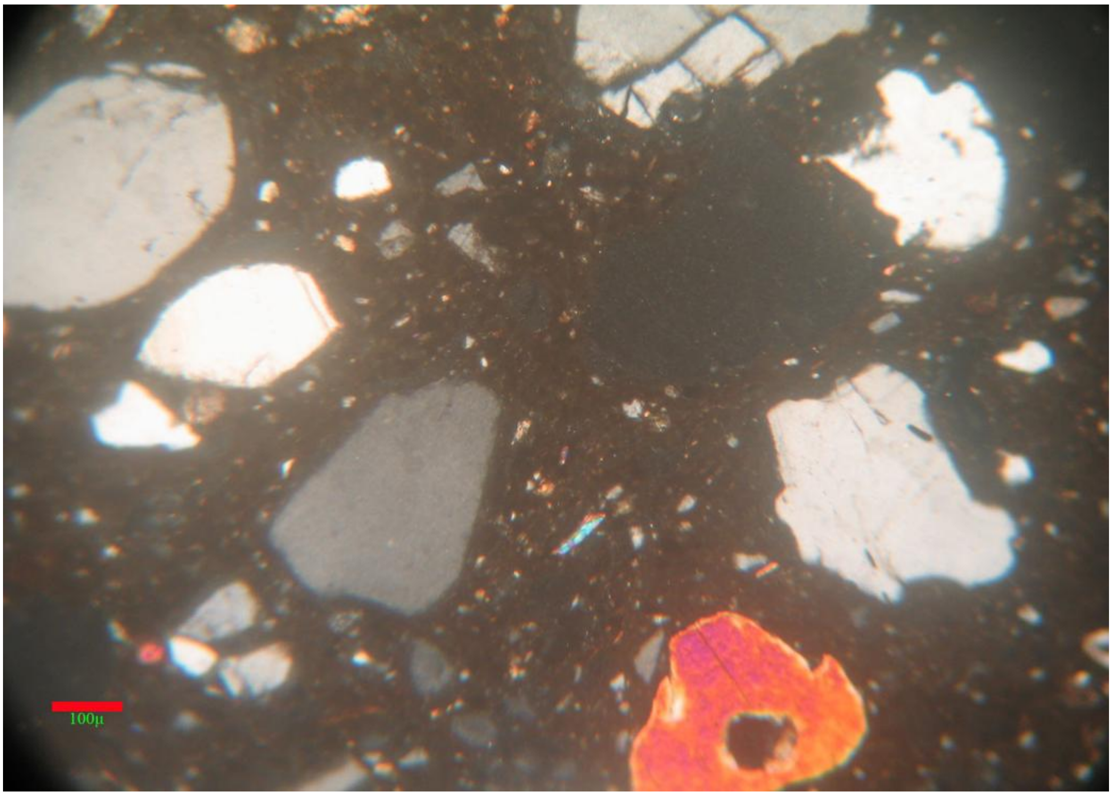


Plate 4.1 Photomicrograph of Bagasra Fabric Group A Showing the Calcareous Nature of the Matrix with Quartz and Feldspar as Nonplastic Inclusions. Field of view: 0.686 sq.mm(at X10)

They are angular to sub angular in shape. The voids are present and most of them are grain fall outs. (Figure 4.52) shows the apparent porosity of the fabric group as well. The clay is ferruginous mixed with calcareous inclusions. Like the parent group, here also the feldspar dominates with quartz as the second and calcite as the third mineral. The major features that differentiate group A from its sub group is the difference in the frequency of non plastic inclusions and its size range. Here also feldspar remains the first mineral and quartz as the second mineral (Figure

4.50). Other minor minerals present in the section mainly include, calcite, augite and iron oxide. A notable feature is the presence of argillaceous inclusions and few rock particles (basalt) along with some olivine. They are present as part of matrix and also as inclusions. The fabric is moderate to poorly sorted and the grain size distribution is nearly bimodal. The particle does not show any particular orientation as such.

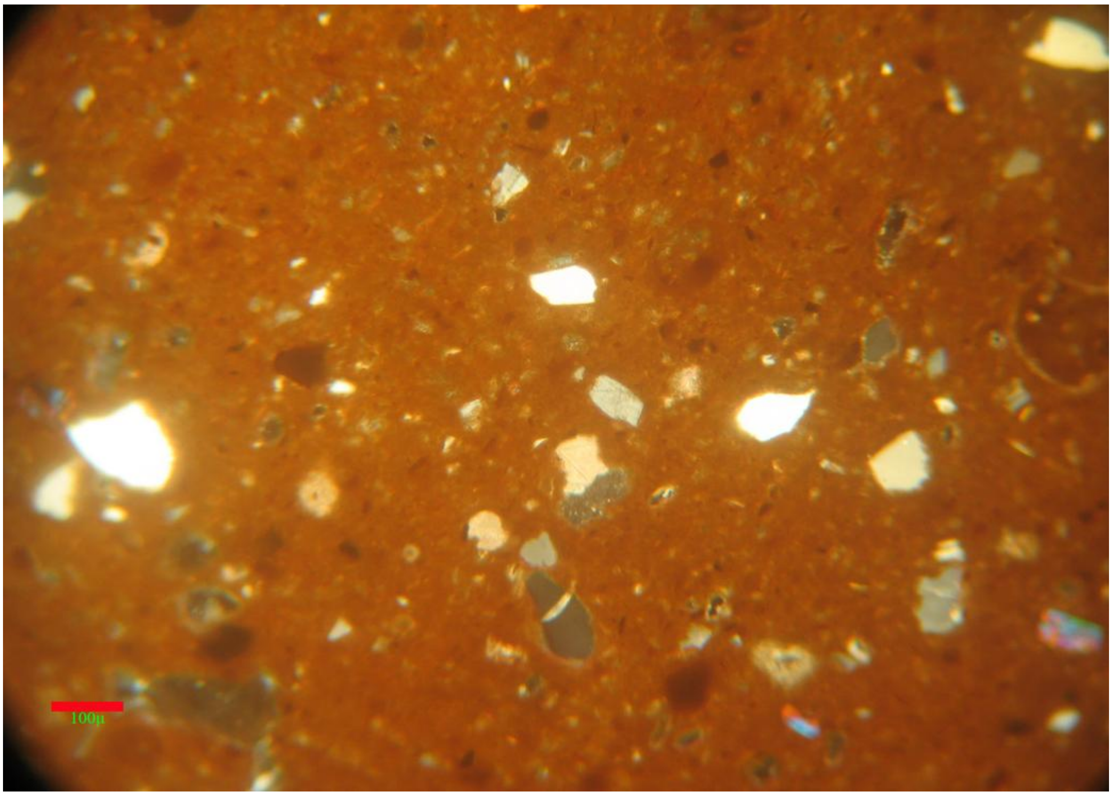


Plate 4.2 Photomicrograph of Bagasra Fabric Group A1 Showing the Birefringence and Angular to Subangular Shape of Quartz.

Group B

The samples falling in this group include 05 (Buff Ware), 735 (Buff Ware), 06 (Buff Ware), 02 (RWBS), 284 (Buff Ware), 233 (Buff Ware), 411 (RWBS), 240 (RW), 21 (RWBS), 50 (RWBS), 12 (Buff Ware), and 146 (Buff Ware). It's quartz – feldspar fabric tempered with medium to fine sand and silt (Figure 4.51). The matrix has a color of deep dark to dark brown. The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 5 to 10%. Most of the inclusions

are present as the part of the matrix. The size of the largest grain of nonplastic inclusions ranges from 80 to 110 microns (plate 4.3). They are angular to sub angular in shape. The voids are rare. (Figure 4.52) shows the apparent porosity of the fabric group. The clay is ferruginous in nature. Quartz followed by feldspar (Fresh and altered) dominate the section. Calcite and augite are present as part of matrix and also as inclusions. Crypto-crystalline calcite is also present through out the section. The other inclusions mainly include a few iron oxides and grog. Even though, rock pieces along with grog is also evident in the section (Figure 4.50). The fabric is well to moderately sorted and the grain size distribution is nearly unimodal to bimodal. Any orientation as such is not observable among the particles.

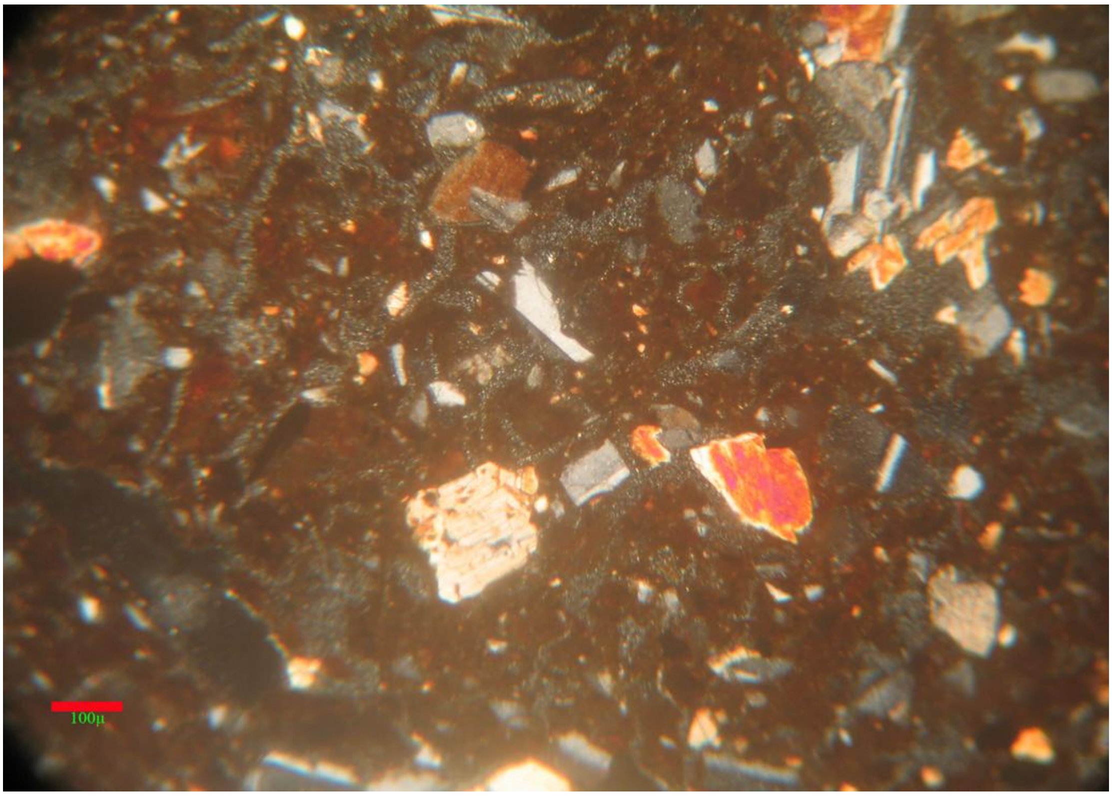


Plate 4.3 Photomicrograph of Bagasra Fabric Group B Showing Poorly Sorted Ferrugenous Fabric with Crushed Basalt Pieces

Group B1

The samples falling in this group include 150 (RWBS), 94 (RWBS), 48 (Buff Ware), 90 (RWBS), 24 (RW), 351 (RW), 162 (RW).

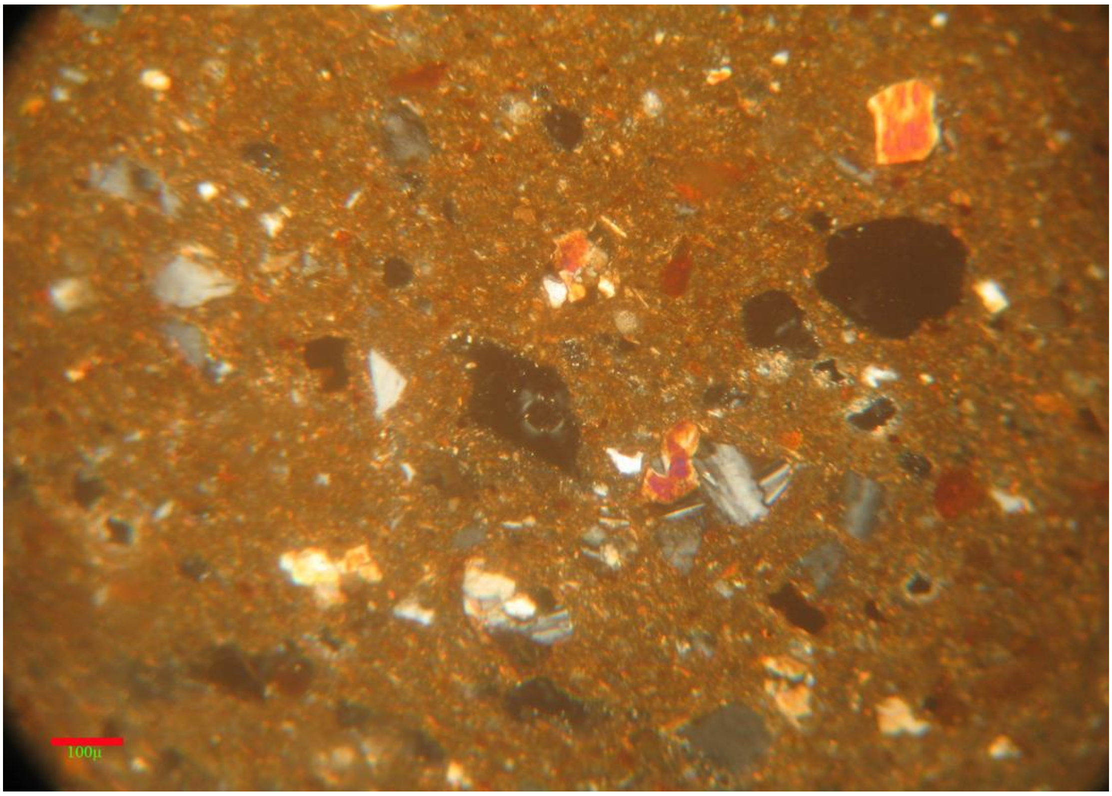


Plate 4.4 Photomicrograph of Bagasra Fabric Group B1 Showing Iron Oxide Patches, Crushed Rocks and Augite are also seen.

Here also the minerals and its percentage remains the same except calcite as it shows a slight increase in its percentage. A slight change is also observable in the frequency and range of non plastic inclusions. It is silt to very fine sand tempered which is different from medium to fine sand temper of the parent group (Figure 4.52). Here the matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 2 to 10%. The size of the largest grains of nonplastic inclusions ranges from 100 to 200 microns (Plate 4.4). They are angular to sub angular in shape. The voids are rare. Clay is ferruginous in nature quartz followed by feldspar (Fresh and altered) dominate the section. Calcite and augite are present

as part of matrix and also as inclusions. Augite and olivine is also present in the section. Some rock and iron oxide is also present in the section (Figure 4.50). The fabric is well to moderately sorted and the grain size distribution is nothing particular. The matrix is deep red in color.

Group C

The samples falling in this group include 678 (RW), 426 (RW), 673 (Buff Ware), 729 (RWBS), 480 (RW), 07 (Buff Ware), 03 (RWBS), 446 (RW), 460 (Buff Ware), 713 (RWBS), 1176 (Buff Ware), 1231 (Buff Ware),, 1009 (Buff ware), 1310 (BWRS), 1029 (RW), 1402 (RWBS), 2045 (RW), 2037 (RWBS), 2138 (RW), 2128 (RWBS), 2255 (Buff Ware), and 1981 (BWRS).

It's feldspar–calcite fabric with silt as major tempering material (Figure 4.54). The color of the matrix varies from dark brown to light brown. The clay is ferruginous in nature. The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 3 to 5%. Most of the inclusions are present as the part of the matrix. The size of the largest grain of nonplastic inclusions ranges from 30 to 60 microns (Plate 4.5). They are angular to sub angular in shape. The voids are rare (Figure 4.55) shows the apparent porosity of the fabric group. Feldspar is the dominant mineral in the group along with calcite. Quartz is the other major mineral present. Mineral inclusions include augite, calcite, biotite etc. Calcite is present as a part of the matrix. But the percentage is too small (Figure 4.53). Grog and iron oxides patches are also present in this category. The fabric is moderately to well sorted and the grain size distribution is unimodal. The particle does not show any a particular orientation.

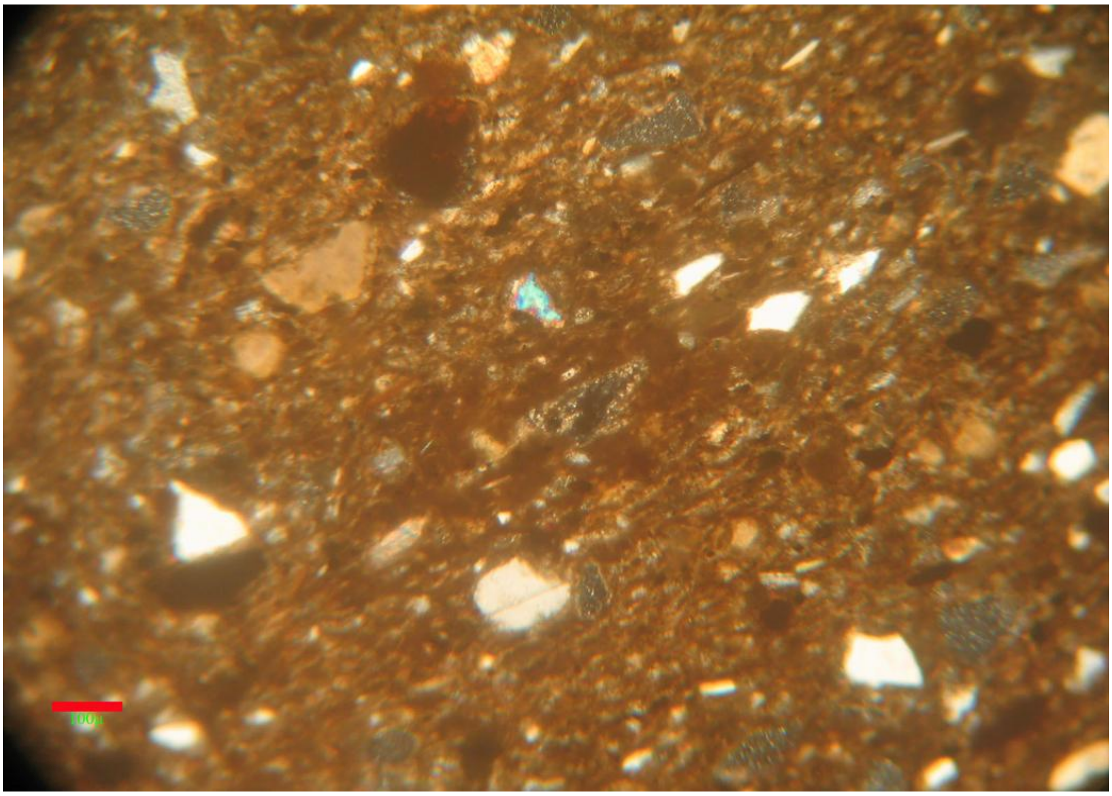


Plate 4.5 Photomicrograph of Bagasra Fabric Group C showing Ferrugenous Fabric with Quartz and Calcite as part of matrix. Angular to Subangular Shaped Quartz and Aggregated Calcites Moderately Sorted.

Group C1

The samples falling in this group include 109 (RW), 236 (RW), 42 (RW), 133 (Buff Ware), 181 (RWBS), and 04 (RWBS).

The major difference of group C1 from C is the percentage of the minerals as the quartz shows a higher percentage and falls second to feldspar. Calcite is the next dominant mineral. Almost all the minerals and features are present in the sub group. It's a feldspar quartz-calcite fabric with silt as tempering. The section has a dark brown to deep red in color. The clay is ferruginous mixed with calcareous inclusions. The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 5to 10% (plate 4.6). The size of the largest grain of nonplastic inclusions ranges from 120 to 180 microns. They are angular to sub

angular in shape. The voids are rare. (Figure 4.55) shows the apparent porosity of the fabric group. Feldspar and calcite is the dominating mineral in the groups. Other minerals mainly include quartz, augite and olivine. Calcite in crystallized form along with altered Plagioclase feldspar is present as a part of the matrix. Rock pieces along with grog and few bioclast are also present in the section (Figure 4.53) The fabric is moderately to well sorted and the grain size distribution is bimodal. The particle does not show any a particular orientation.

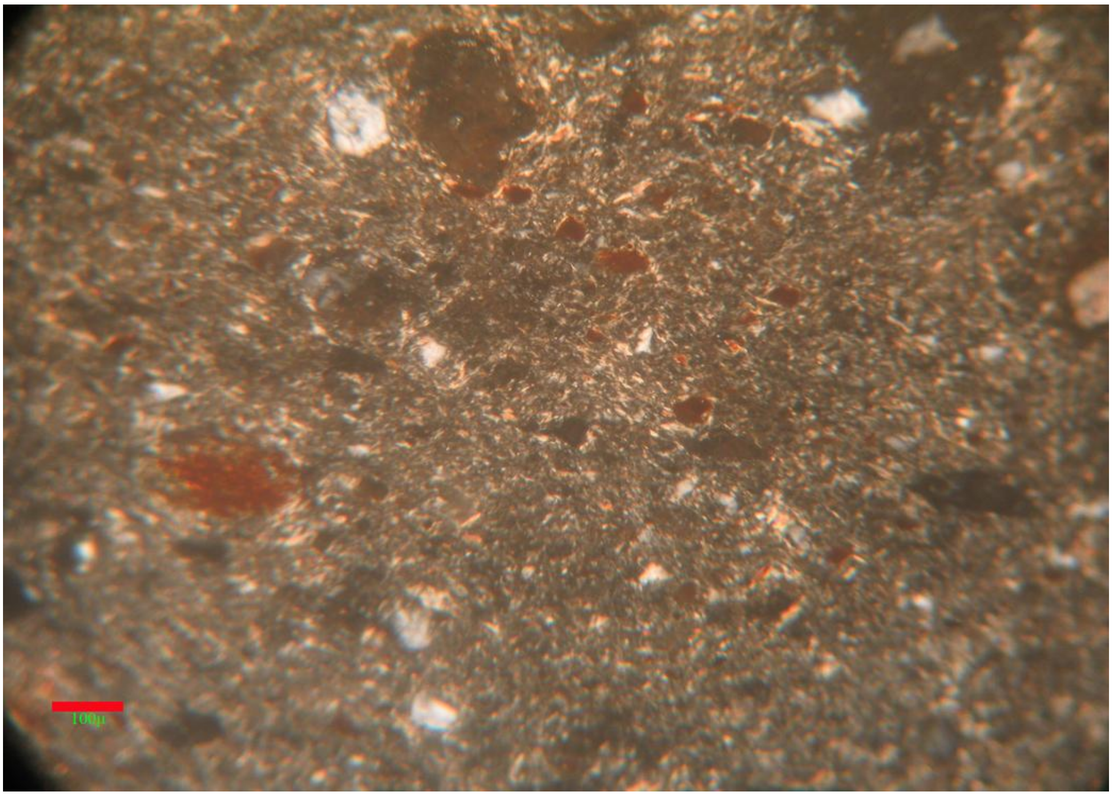
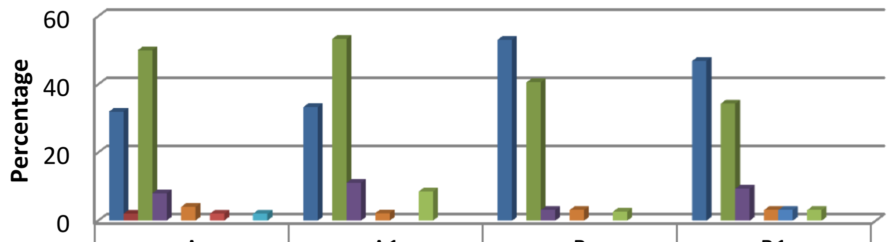


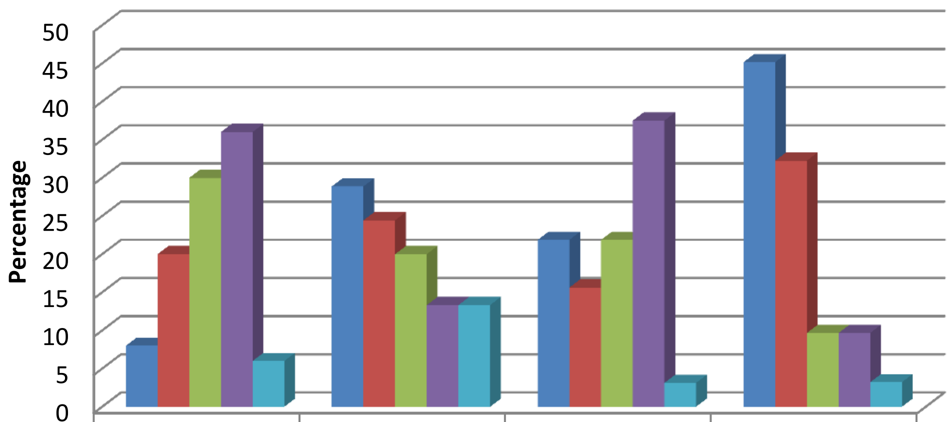
Plate 4.6 Photomicrograph of Bagasra Fabric Group C1 Showing the Fine Quartz-Calcarious Nature of the Matrix with Mica Being Part of the Matrix

Figure 4.50 Distribution of Major Minerals Present at Fabric group A, A1, B and B1 from Bagasra



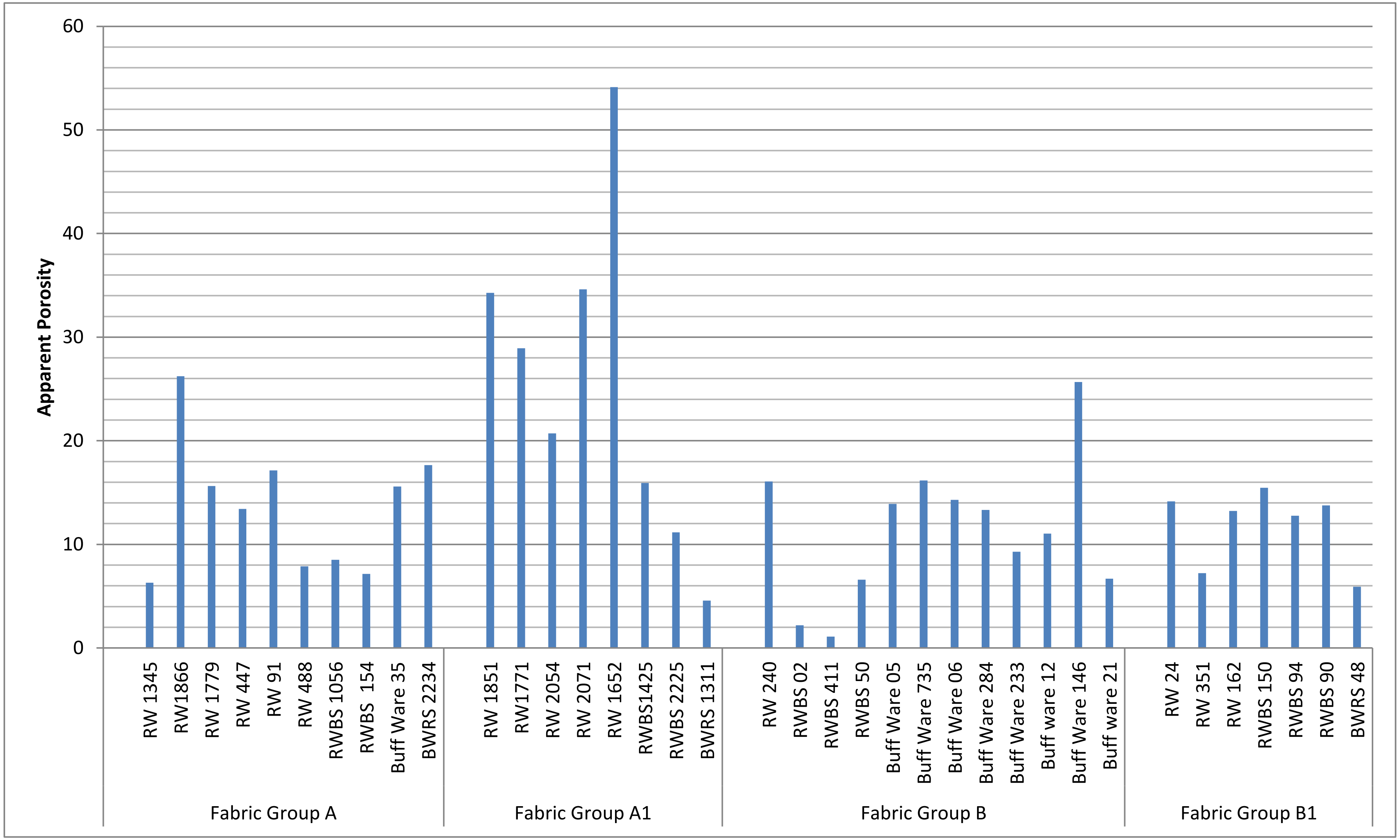
	A	A1	B	B1
quartz	32	33.33	53.12	46.87
pls flds	2			
alt fls	50	53.33	40.62	34.37
calcite	8	11.11	3.12	9.37
mica				
Augite	4	2.22	3.12	3.12
olivine				3.12
rock	2			
ironoxide		8.53	2.64	3.12
groge				
hornblende	2			

Figure 4.51 Textural Distribution of Fabric Group A, A1, B and B1 from Bagasra



	A	A1	B	B1
Silt	8	28.88	21.87	45.16
VFS	20	24.44	15.62	32.25
FS	30	20	21.87	9.67
MS	36	13.33	37.5	9.67
CS	6	13.33	3.12	3.22

Figure 4.52 Apparent Porosity of Fabric Group A, A1, B and B1 from Bagasra



Group D

The samples falling in this group include 449 (RW), 756 (RW), 726 (RW) and 1019 (RW).

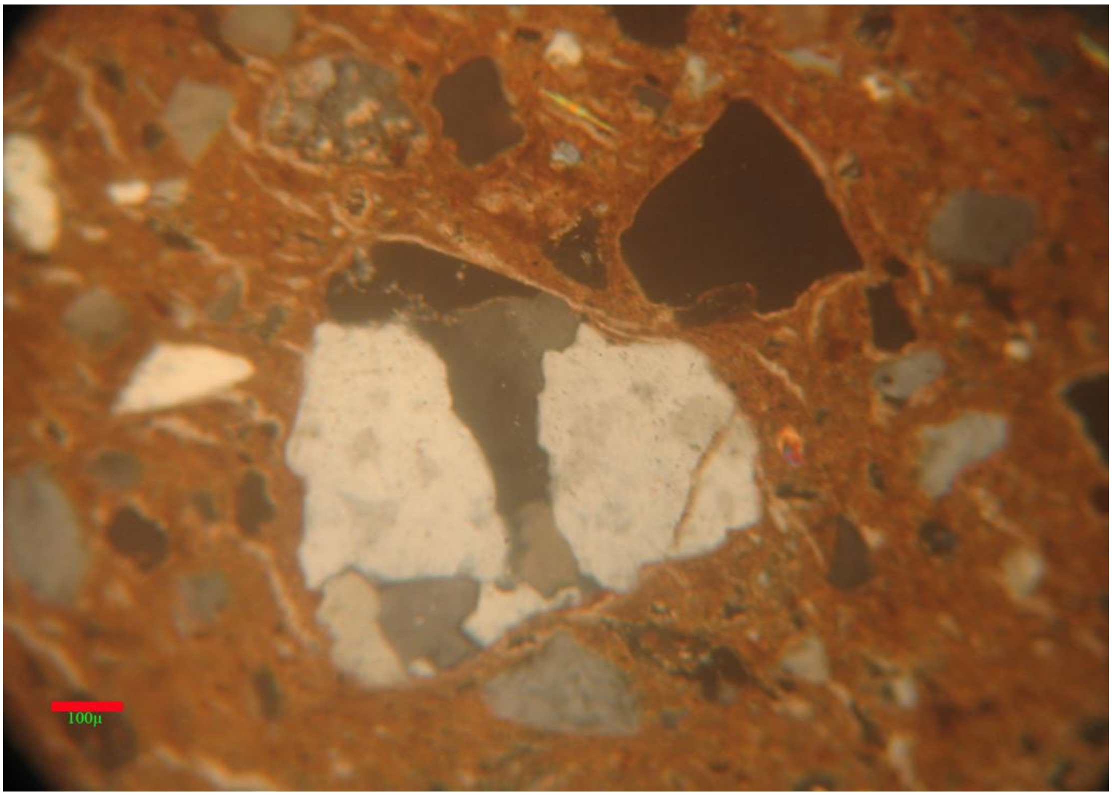


Plate 4.7 Photomicrograph of Bagasra Fabric Group D Showing Coarse Fabric with Quartz at the Centre. Voids in the Form of Grain Fallout Can also Seen.

It's a feldspar fabric with silt to medium sand as tempering material (Figure 4.54) The clay is ferruginous in nature. The color of the matrix varies from dark brown to deep red in color. The group is completely dominated by feldspar (plagioclase and altered). Quartz and calcites is the second dominant mineral with less equal distribution. Other minerals include olivine and horn blend. Few iron oxide patches along with rock (basalt) were also present throughout the group (Figure 4.53). The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 40 to 50%. Most of the inclusions are present as the part of the matrix. The size of the largest grain of nonplastic inclusions ranges from 450 to 500 microns

(Plate 4.7). They are sub angular in shape. The voids are present and most of them are grain fall outs. (Figure 4.55) shows the apparent porosity of the fabric group. The fabric is poorly sorted and the grain size distribution is nothing particular. The particle does not show any orientation as such.

Group E

The samples falling in this group include 146 (Buff Ware), 702 (RW), 106 (RW), 26 (RW), 1408 (RW), 1504 (RW), 1711 (RW), 1209(RW), 1104(RW), 1305 (BWRS), 2262 (RW) and 1055 (RW).

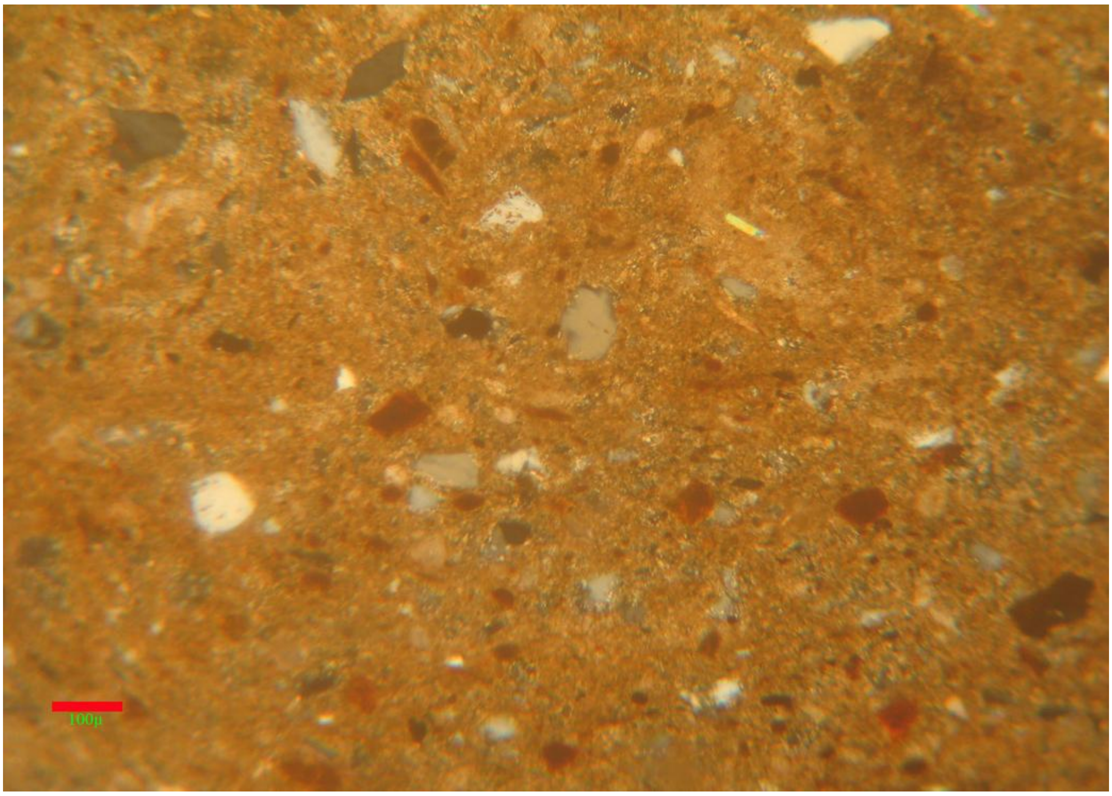


Plate 4.8 Photomicrograph of Bagasra Fabric Group E Showing Ferruginous materials Mixed with Calcareous Fabric. Quartz, Altered Feldspar and Iron Oxide Patches can be Seen.

It's a feldspar quartz fabric where feldspar dominates the section with more than 60%. The fabric is fine to medium sand tempered (Figure 4.54). The clay is ferruginous in nature. The matrix has a color of light brown to deep dark. The matrix is pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed

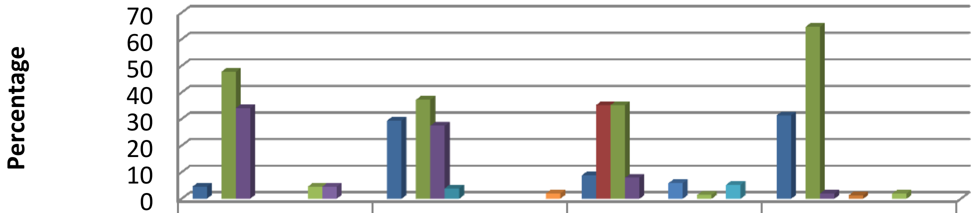
Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 10 to 30%. The size of the largest grain of nonplastic inclusions ranges from 120 to 300 microns (Plate 4.8). They are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. (Figure 4.55) shows the apparent porosity of the fabric group. Feldspar followed by fresh quartz dominates the section. Calcite is present as part of inclusion. Biotite and augite are present in the matrix. Other inclusions mainly include iron oxides patches and very little mica and crushed grog which forms as part of matrix along with calcite crystals (Figure 4.53) The fabric is ill to moderately sorted and the grain size distribution is bimodal. The particle does not show any particular orientation.

Group F

The sample falling in this group include 36 (RW).

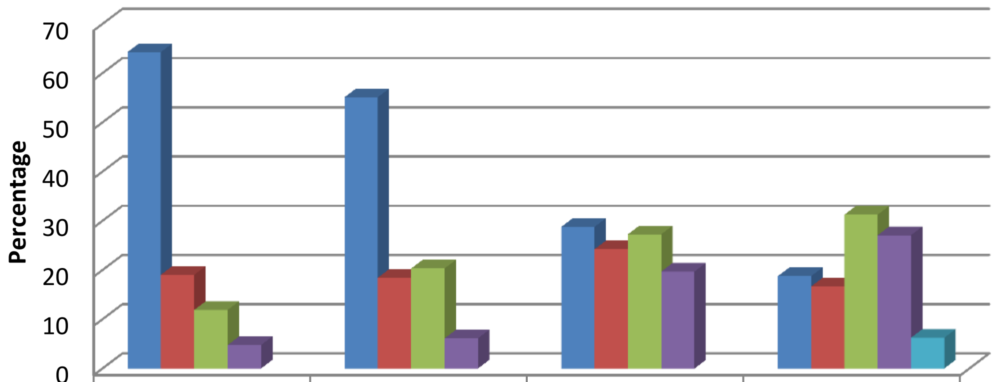
It is Feldspar mica fabric tempered with silt to fine sand (Figure 4.57) Calcite is spread out throughout the section. The clay is ferruginous mixed with calcareous inclusions. The section is compact and dark brown in color. The matrix is pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 10 to20%. Most of the inclusions are present as the part of the matrix. The size of the largest grain of nonplastic inclusions ranges from 100 to 120 microns (Plate 4.9). They are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. (Figure 4.58) shows the apparent porosity of the fabric group. Altered feldspar followed by biotite dominates the section. Mica and calcite are present as part of matrix and also as inclusions. The most characterizing feature is the presence of cryptocrystalline calcite (Figure 4.56) Quartz along with plagioclase feldspar is also present in the section. The fabric is poorly sorted and the grain size distribution is nothing particular. The mica particles present in the section shows a parallel orientation towards the wall.

Figure 4.53 Distribution of major minerals present at Fabric group C, C1, D and E from Bagasra



	C	C1	D	E
quartz	4.54	29.41	8.82	31.37
pls flds			35.29	
alt fls	47.72	37.25	35.29	64.7
calcite	34.09	27.45	7.94	1.96
mica		3.92		
Augite				1.34
olivine			5.88	
rock				
ironoxide	4.54		1.47	1.96
groge	4.54			
hornblende			5.29	
Argilacious		1.96		

Figure 4.54 Textural distribution of Fabric group C, C1, D and E from Bagasra



	C	C1	D	E
Silt	64.28	55.1	28.78	18.75
VFS	19.04	18.44	24.24	16.66
FS	11.9	20.32	27.27	31.25
MS	4.76	6.12	19.69	27.08
CS				6.25

Figure 4.55 Apparent Porosity of Fabric Group C, C1, D and E from Bagasra

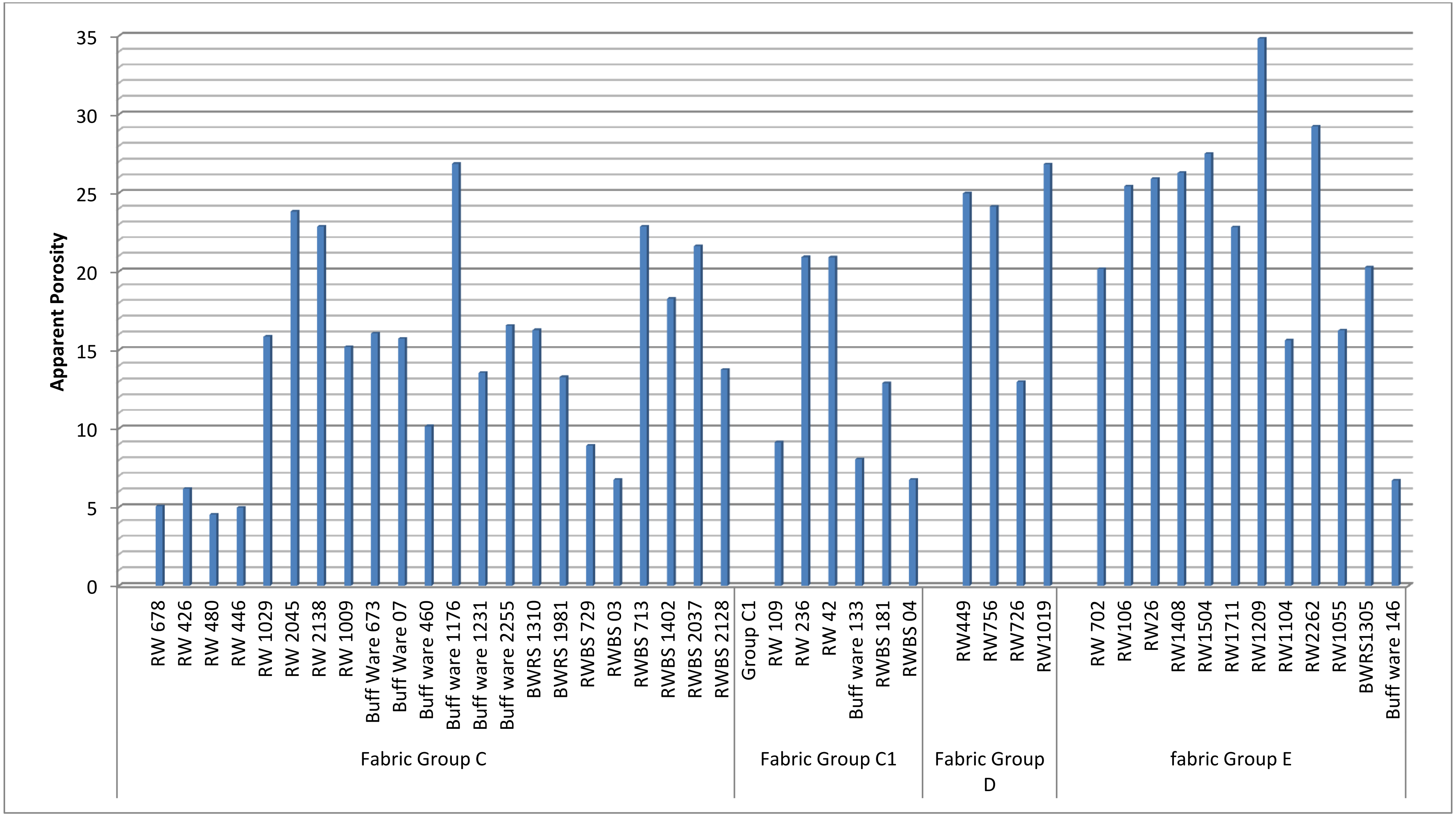
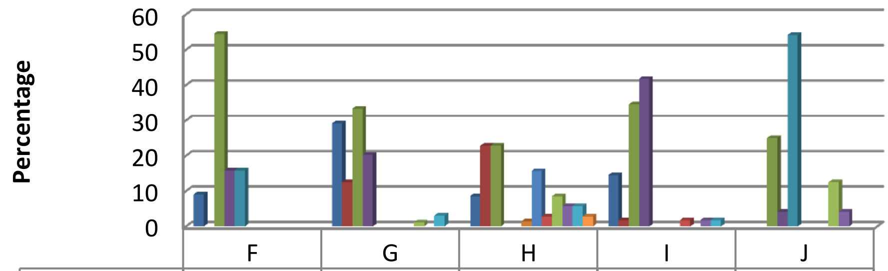
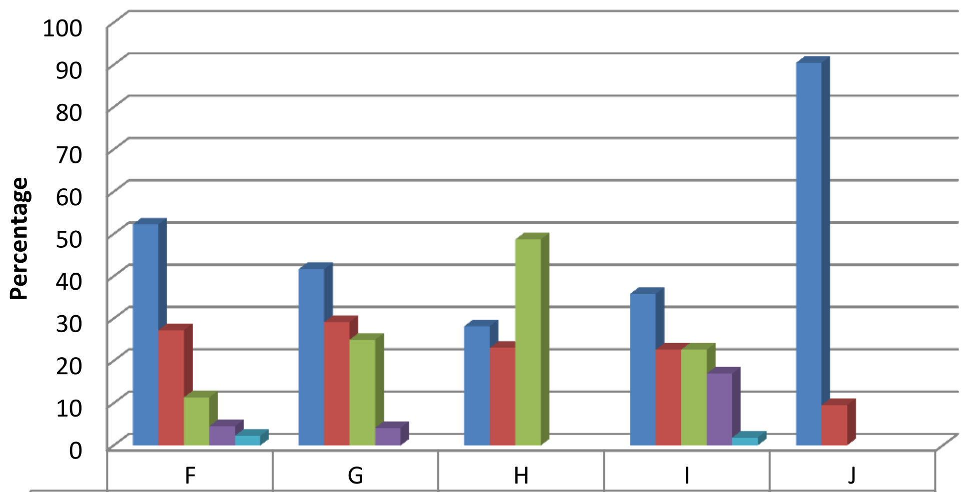


Figure 4.56 Distribution of Major Minerals Present at Fabric Group F, G, H, I and J from Bagasra.



	F	G	H	I	J
quartz	9.09	29.16	8.57	14.54	
pls flds		12.5	22.85	1.81	
alt fls	54.54	33.33	22.85	34.54	25
calcite	15.9	20.32		41.81	4.16
mica	15.9				54.16
Augite			1.42		
olivine			15.71		
rock			2.85	1.81	
ironoxide		1.1	8.57		12.5
groge			5.71	1.81	4.16
hornblende		3.06	5.71	1.81	
Argilacious			2.85		

Figure 4.57 Textural Distribution of Fabric Group F, G, H, I and J from Bagasra



	F	G	H	I	J
Silt	52.27	41.66	28.2	35.84	90.47
VFS	27.27	29.16	23.07	22.64	9.52
FS	11.36	25	48.71	22.64	
MS	4.54	4.16		16.98	
CS	2.27			1.88	

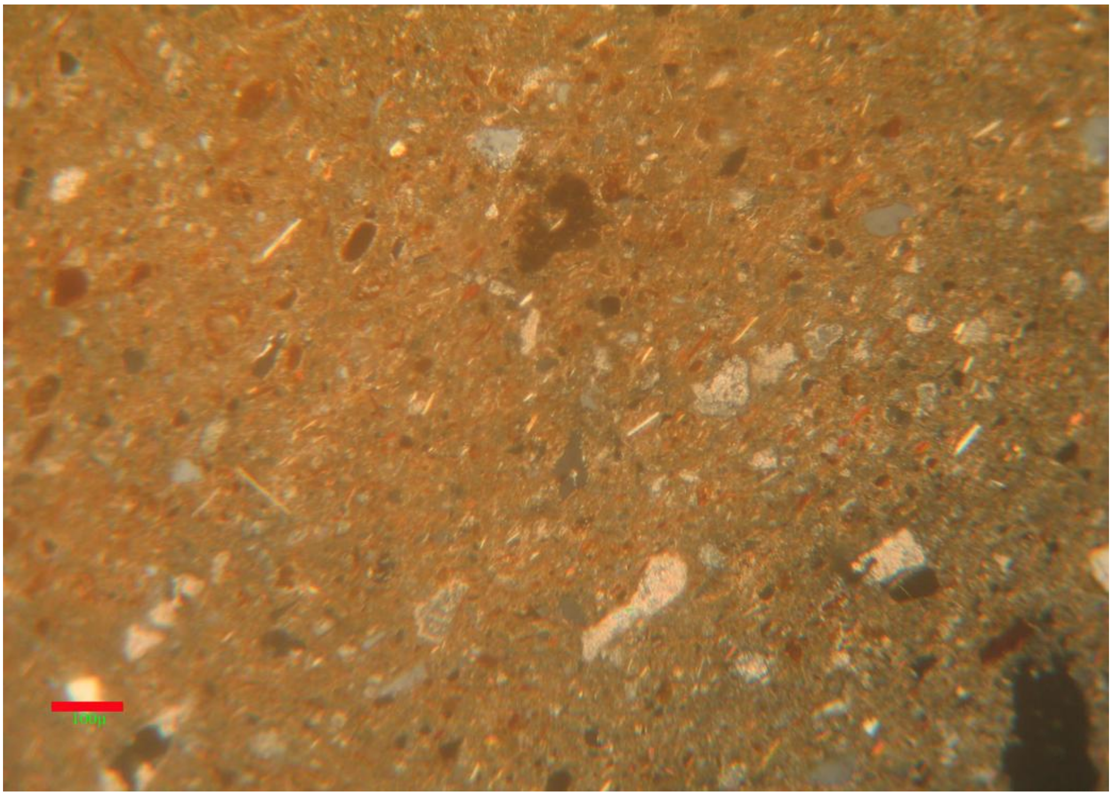


Plate 4.9 Photomicrograph of Bagasra Fabric Group F, Showing Fine Ferruginous Quartz-Mica fabric. Longitudinal Mica Showing more or less parallel Orientation

Group G

The Samples falling in this group include 2053 (RWBS), 2199 (RWBS), 2097 (RW), 1012 (RW), 1780 (RW), 1729 (RW), 1002 (RW), 1019 (RW), 439 (Buff Ware), 739 (RW), 165 (RW), 196 (RW), 639 (RW), 722 (RW), 393 (RW), 728 (RWBS), 44 (RWBS), and 453 (Buff Ware).

It's a feldspar-Quartz fabric and silt to fine sand tempered (Figure 4.57). The clay is ferruginous. The color of the matrix of the sections falls in the group is deep red. The matrix is Non-pleochroic in Plain Polarized Light (PPL) and birefringent to fairly birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 40 to 50%. The size of the largest grain of the nonplastic inclusions ranges from 60 to 500 microns (4.10). They are angular to sub angular in shape. The voids are present and most of them are grain fall outs. (Figure 4.58) shows the apparent porosity of the fabric group. Feldspar (plagioclase and altered)

quartz dominates the section. Calcite is the third major mineral present in the group (Figure 4.56). Other minerals present mainly include augite and mica. Calcite in crystal form and rock were also present in the section. Iron oxide patches can be seen throughout the section. The fabric is moderate to well sorted. The grain size distribution is nothing particular. The particle does not show any orientation.

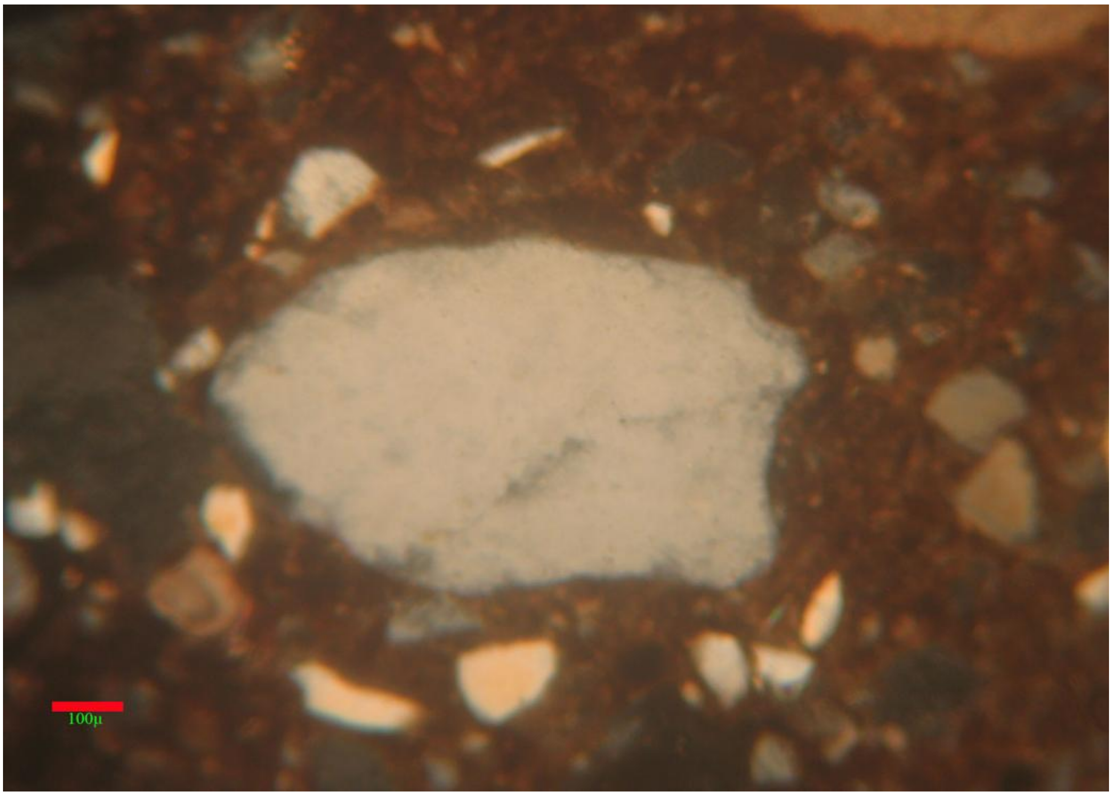


Plate 4.10 Photomicrograph of Bagasra Fabric Group G Showing Coarse Fabric with Moderate to Well Sorted Inclusions (F.S-M.S). Minerals Seen are Altered Feldspar and Quartz.

Group H

The Samples falling in this group include 01 (RWBS) and 3 (RW).

It's feldspar-quartz fabric and is fine sand tempered (Figure 4.57). The clay is ferruginous. The matrix is light to dark brown in color. The matrix is Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 10 to 40%. The size of the largest grain of the nonplastic inclusions ranges from 40 to 50 microns (Plate 4.11). They

are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. (Figure 4.58) shows the apparent porosity of the fabric group. Feldspar (Plagioclase and altered) dominates the section. Quartz is the second mineral in its dominance. Other minerals present in the section mainly include olivine, iron oxide, augite, and calcite. Calcite in crystal form is also present in the section (Figure 4.56). The fabric is moderate to ill sorted and the grain size distribution is nothing Particular. The particle shows orientation towards wall.

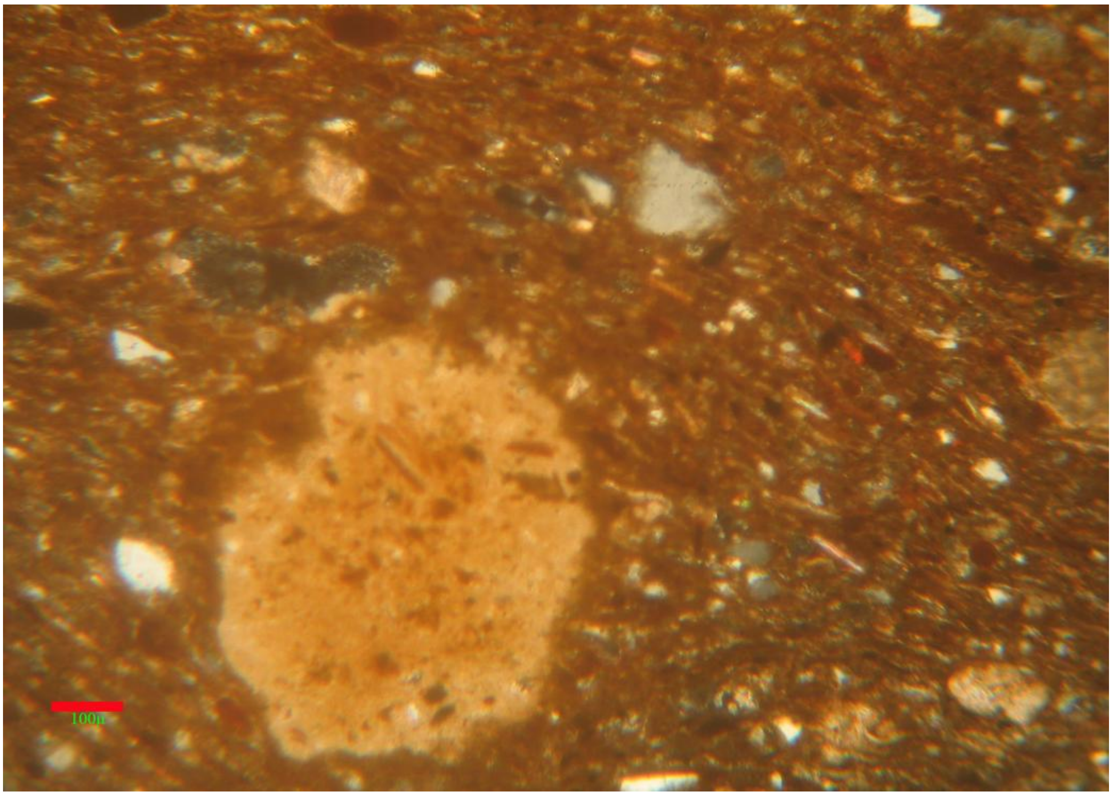


Plate 4.11 Photomicrograph of Bagasra Fabric Group H Showing Preferred Orientation of Mica. Quartz and patches of Crypto-Crystalline Calcite are also Seen.

Group I

Sample falling in this group include 247 (RW).

Even though quartz is dominant in section, it's feldspar–calcite fabric. Fine to medium sand is used as tempering material (Figure 4.57) The clay is ferruginous

mixed with calcareous inclusions. The section has a deep brown color. The matrix is non pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of nonplastic inclusions ranges from 20 to 30%. The size of the nonplastic inclusions ranges from 80 to100 microns (Plate 4.12). They are angular in shape. The voids are present and are more in number. (Figure 4.58) shows the apparent porosity of the fabric group. Calcite is the dominating mineral in the group, followed by feldspar and quartz. Other inclusions include olivine, augite and mica (Figure 4.56). The fabric is poorly sorted and the grain size distribution is nothing particular. The particle does not show any a particular orientation.

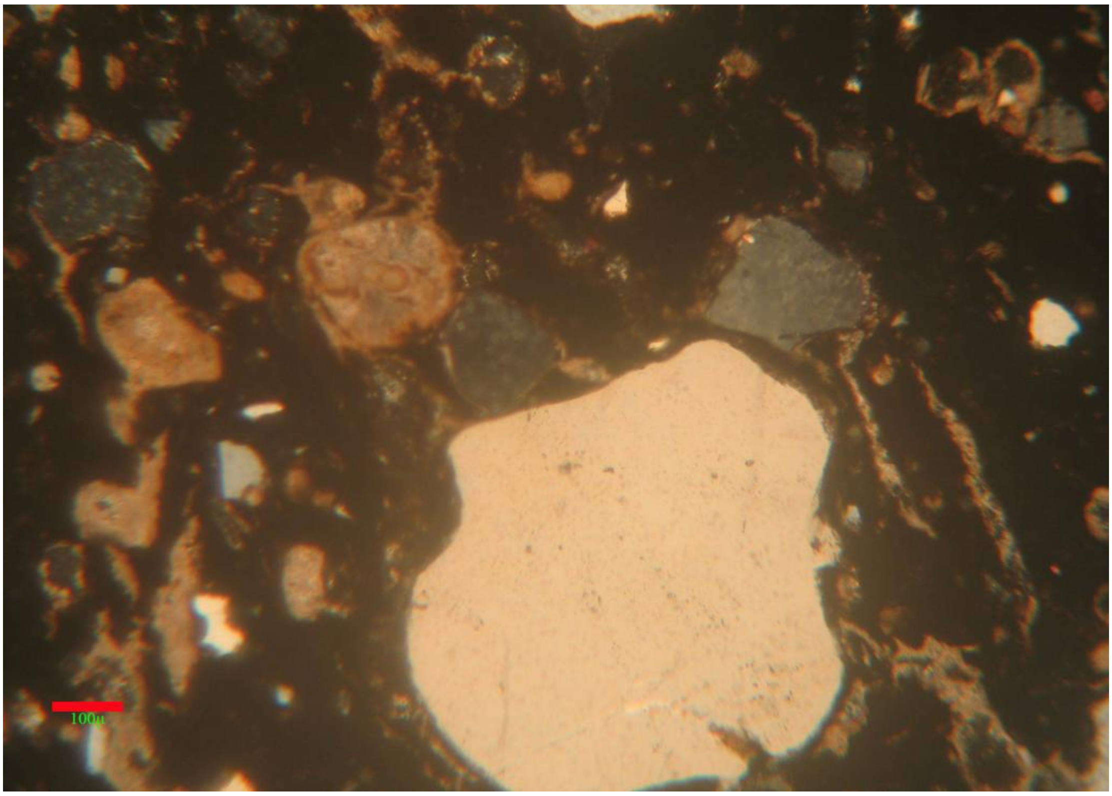
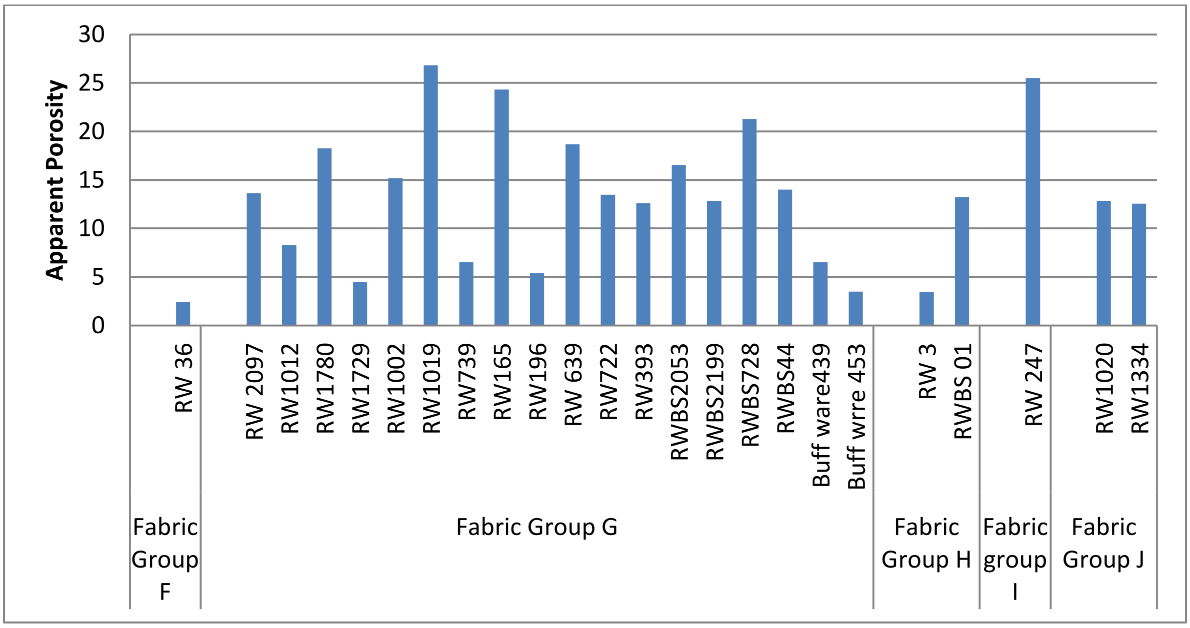


Plate 4.12 Photomicrograph of Bagasra Fabric Group I Showing the Sub-Rounded to Rounded Bioclasts.

Figure 4.58 Apparent Porosity of Fabric Group F, G, H, I, and J from Bagasra



Group J

The samples falling in this group include 1020 (RW) and 1334 (RW).

It is mica–feldspar fabric with silt as temper (Figure 4.57) The clay is micaceous mixed with ferruginous inclusions. The matrix is non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The matrix is light yellow in colour. The frequency of nonplastic inclusions ranges from 10 to 20%. Most of the inclusions are present as the part of the matrix. The size of the largest grain of the nonplastic inclusions ranges from 45 to 50 microns (Plate 4.13). They are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. (Figure 4.58) shows the apparent porosity of the fabric group. Mica and altered feldspar are the dominant among minerals. Calcite, augite and olivine are present as part of matrix and also as inclusions. The most characterizing feature is the presence of calcite crystals (4.56). The fabric is poorly sorted and the grain size distribution is unimodal. The particle shows a parallel orientation which is clearly visible from the mica particles which are neatly arranged in orientation to the wall. Iron oxide patches are also present.

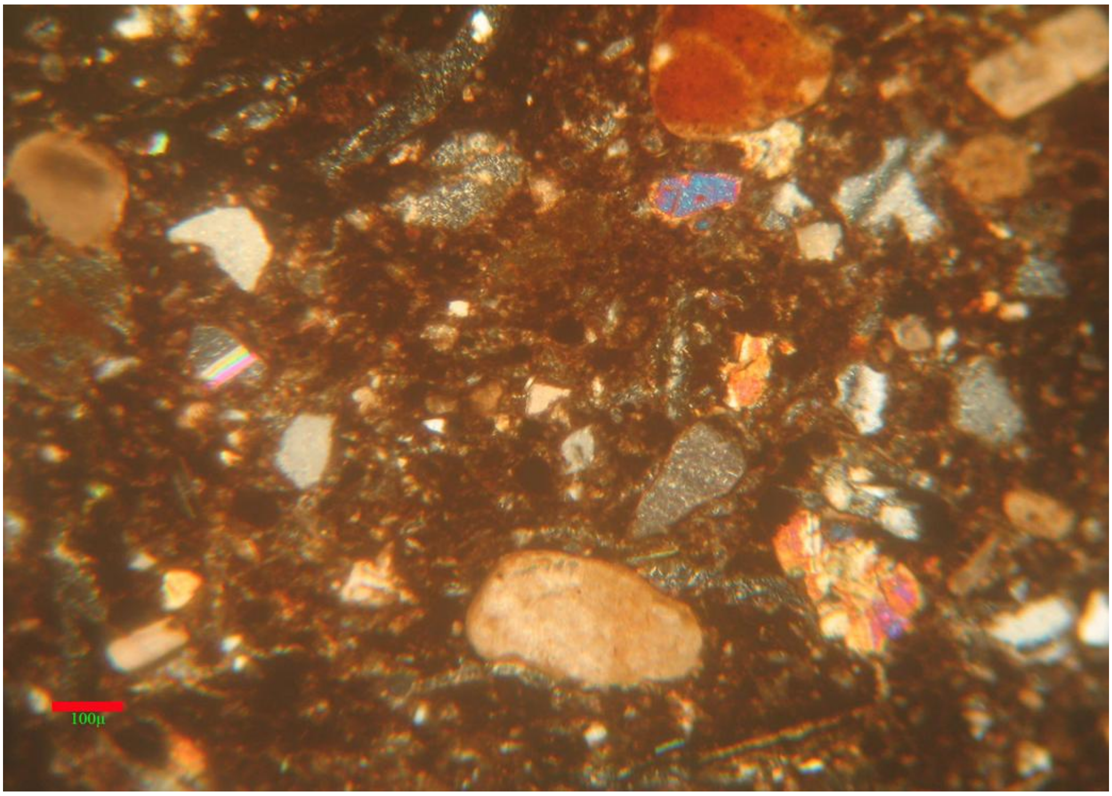


Plate 4.13 Photomicrograph of Bagasra Fabric Group J Showing Poorly Sorted Fabric with Plagioclase Feldspar, Crypto-Crystalline Calcites and Quartz.

4.3 Section III Ethnoarchaeological Study

Bagasra (23° 3' 30" N; 70° 37' 10" E), is a small Harappan site located on the eastern extremity of Gulf of Kutch in Maliya Taluka, Rajkot District, Gujarat State. It is located equal distant from Kutch, North Gujarat, and Saurashtra, the three major cultural regions of Gujarat, and shows the distinct cultural traits of the above three in the Chalcolithic times. The unique geographical location of the site allows the archaeologist to presume it as 'a centre of movement of the Chalcolithic communities' during the Harappan times. The ethno archaeological work which carried in and around the site was with an intension to understand or record the existing potting traditions of the region, and to generate a data to evaluate the exiting topics in social organization of production: specialization and the idea of standardization in pottery production.

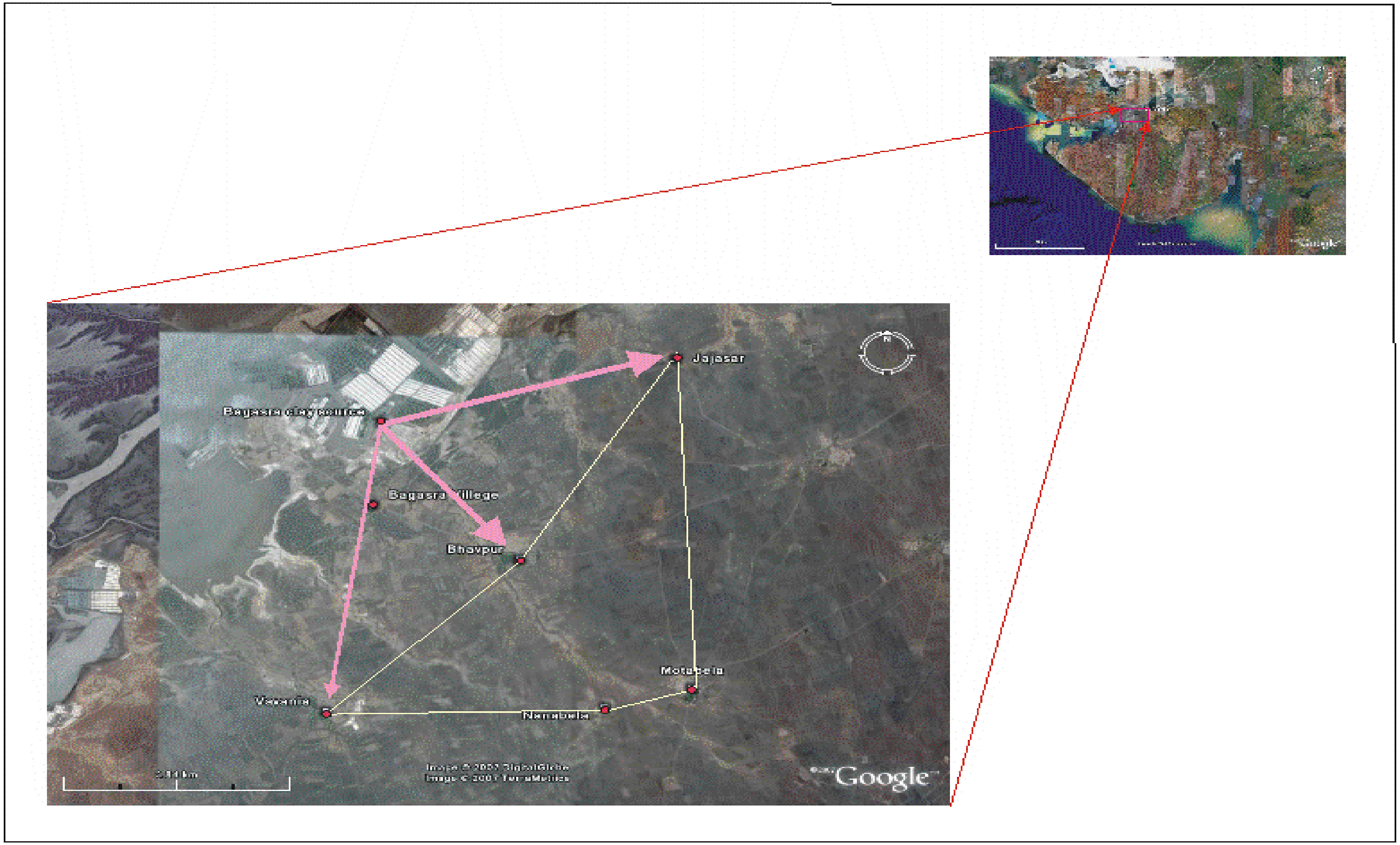
4.3.1 Methods of Study

It includes the recording of all events in the workshop through observation and interviews, along with photo documentation. The study was conducted to record of the activities at the workshop, Collection of samples from all stages of production to take a record of the workshop and to understand the geological source and technology of production. Finally it will work out a site characterization and a metric data base for understanding specialization by recording the external attributes.

In the process five workshops has been surveyed. These workshops has been designated as W1 (Bavpur Village, Amarshi Bhai and Godawari Ben), W2 (Jajasar Village, Bikhi Bhai and Godi Ben), W3 (Vavania Village, Mavji Bhai and Leela Ben), W4 (Mota Bela Village, Laljibai Devkar), and W5 (Nana Bela Village, Babu Bhai and Rema Ben) (Figure 4.59). Of these W1 use the mixture of two types of clay for making pottery, at the same time all other workshops (W2, W3, W4, and W5) use a mixture of three clays.

Here all the potters depend up on the local source of the clay, i.e., Village Lake, clay from Sea shore and the forest around. All the members of the potting family are actively involved in all the stages of production while at W2 one can see a segregation of labour within the family members. Another notable feature is the exception of ladies from throwing except W3. Year round production happens in W1, W2 and W3, while W4 and W5 do potting only for 3 to 4 months in a year, while they are actively engaged in agriculture, cattle breeding and in brick manufacture. The subsistence economy of W1 and W2 is fully derived from potting, W3, like other workshops partly depend up on other means for existence. Here the researcher opting a classification of part time and full time specialist simply based on the time one spent for potting and the option for subsistence one have. The idea of part time and full time specialist will be dealt in detail since the researcher found it difficult to cope with the present common categorization.

Figure 4.59 Map Showing Area Under Study and the Location of the Workshops



Both the full time and part time specialists make all type of vessels which support the functions of cooking, serving and storage. The common shapes produced are Gora, (water storage vessel), Bhamba/Batak (water bottle), Patia (small basin type for making sabji), Ramayya (lid), Kasrod (frying pan), and Tawa (making roti). Other shapes mainly include Kodia (lamp), Galla (money box) and Pambodi (flower pot). Along with the above mentioned, potters are keen to supply any shape of any size as per the demand of the customers. General opinion from the potters states that a number of new shapes like flower pot and stove stand were added while the old ones retained its position as well.

4.3.2 Method of Manufacturing

All the workshops surveyed, holding almost same tradition of potting where the clay is collected from the near by source; most of the time either from the village tank, from the surrounding forest or from sea shore. The process of refining includes hand picking of the chunks in the clay, beating with the stick to separate the kankar, followed by a fine sieve. Once the clay is purely exempted from the unwanted elements, it is mixed with adequate amount of water to achieve the workability. The mixture is then kneaded with hand and foot to form a smooth paste in which all the elements are evenly distributed (some time ash/cow dung is preferred as temper to increase the workability by the potter). In the next stage a pinda (heap of clay with tapering shape) is made and kept it for some time. For the easiness of throwing, small clay lumps were detached from the main heap and throwing it on the wheel. Along with the movement of the wheel the preferred shape is taking place in the hands of the potter. Once the rim is well defined (some times a piece of cloth is used) the shape is cut and taken off from the wheel with the help of a thread and allow it to dry on shade.

Once the excess water is dried up, the hollow part of the vessel (base) is looted by using dabber and paddle. Paddles of different size, shape and weight were used remove the unevenness on the surface as required. Once the pots are enlarged

special care was taken to smoothen the surface and in the process the entire paddle marks were covered and allowing the vessel to dry in shade. Some times a slip of fine clay was applied as per the situation demands.

In the next stage, pots were arranged properly in the kiln followed by firing with the help of small pieces of wood. Sometimes cow dung was also used. Normally, different size of kilns was used for different shapes. The kilns are generally either a round or cylindrical in shape. After an extended firing of ten to fifteen days, the pot comes out with extreme charm and strength. The beauty of the vessels was further enhanced by applying different shades of color and design. Thus the vessels get ready to go for market.

As far as the distribution is concerned, normally potters house itself act as market, sometimes they do have a permanent place in the market and some time the potter himself carry the vessels to the doors of the villagers. Thus a good vessel is simply coordination of mind and body and bundle of experience the potter possess.

4.3.3 Morpho-Metric Analysis

Among the workshops surveyed three of them (W1, W2, and W3) were engaged in year round production while W4 and W5 are seasonal (3 to 4 months) in nature. As far as the economy is concerned W1 and W2 is purely depend up on the income generated from potting while W3 is mainly depend up on potting and partly supported by agriculture and other means of occupation.. In the third category, the economy of the potters is mainly supported by other means like brick manufacture and partly supported by potting. So, W1 and W2 is considered as full time specialist and W3 is specialist with part time occupation and W4 and W5 as part time specialist.

Since the method of manufacturing and the tradition follows remains the same, it became difficult to make a general distinction between them. As far as the visible parameters are concerned, quality and uniformity of the product can be

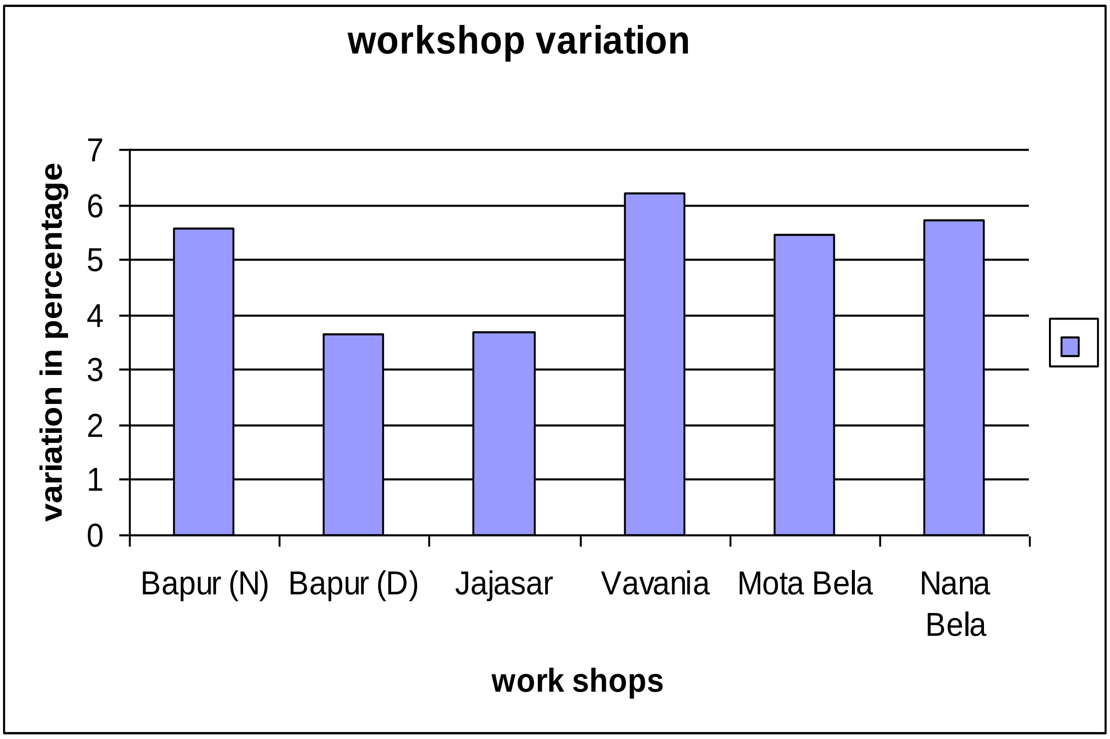
considered as a means to assess skill and technical advancement of the potter. The general agreement towards determining the quality of the product is that a division of labour and time spend on it may cause the reduction of variability and emerges the idea of part time and full time specialist as a reason for the difference in the quality of product. It is assumed that the product of a full time specialist will be more unified than the one produced by the part timer. With the intention to understand the nature of production and a rethink in the above argument a metric analysis has been carried out, in which visible parameters like body height, dimension of rim (internal and external) and thickness of rim and brim has been considered.

In the process, 25 samples of same size and shape were collected from each workshop and allowed to go through a metric analysis. To understand the variability occurred within the workshop, to estimate how much the potter is specialized and the degree of standardization each workshop retain, it is decided to go with the statistical method of 'Coefficient of Deviation' as it is a measure of dispersion. The method is commonly used to measure the relative variation. It is advisable when one want to compare the variability of two or more than two series. Here, the series (or group) for which the coefficient of deviation is greater is said to be more variable or conversely less consistent, less uniform, less stable or less homogeneous. On the other hand the series for which co efficient of deviation is less is said to be less variable or more consistent, more uniform, more stable or more homogeneous. Although, any measure of dispersion can be used in conjunction with any average in computing relative dispersion. Hence, mean deviation as the measure of dispersion and the arithmetic mean as the average is used to avoid the complexities. The following table (Table 4.6) shows the summary of the variation occurred in the samples analyzed from all the workshops.

Table 4.6 Variation in Potting at Different Workshop around Bagasra

	Bavpur (N)	Bavpur (D)	Jajasar	Vavania	Mota Bela	Nana Bela
Height	0.033	0.026	0.024	0.0389	0.0207	0.0313
Int:dia meter	0.03	0.0285	0.023	0.0158	0.0306	0.0374
Ext: dia meter	0.04	0.025	0.0327	0.0167	0.0286	0.0301
Rim thick	0.089	0.0732	0.0371	0.0974	0.0948	0.0618
Brim thick	0.086	0.051	0.0684	0.1422	0.1007	0.1249
Total per/N =	27.8/5= 5.56%	18.3/5= 3.66%	18.4/5= 3.68	31.10/5= 6.22	27.27/5= 5.454	28.55/5= 5.71

Figure 4.60 Variations in Potting at Different Workshops Around Bagasra.



From the chart it is clear that W3 has the maximum percentage variation and Bavpur (W1 D) has the less percentage of variation. While W4 and W5 posess more variation than W1 and W2 and ranks down to Vavania.

The analysis brought out some interesting finds and opened a platform for discussion. It clearly stated that W4 and W5 (considering as part time specialists) produces less variable/more standard products than W3 (full time specialist) and W1 up to an extent (Figure 4.60). It is found that the normal production by the specialist at W1(Normal Production) and production under an exclusive instruction/demand (W1D) brings a difference as it estimates a strong direction or constant demand from the part of a consumers/Elite(?), Can enhance the reduction in variation or a better degree of standardization. Another interesting assumption generated by the work is that the micro division of labour/micro specialization, (W2, Jajasar, where each stage of production is done by different members of the family brings enormous degree of specialization compared to the single specialists who controls all the stages of production. In use of advanced tools (elecric wheel, Jajasar) and separate provisions for different stages (square and round champers for clay paste preparation at Jajasar and Mota Bela), separate kilns for different size and shapes (Bavpur and Jajasar) shows the different levels of specialization and the degree of standardization reflected on the products. Another interesting arena of research is the adaptation of potters to the changing environment and its reflection on production system and on the subsistence economy. At winter the production is on the peak, almost all potters engage in potting as it is observed, a major reason may be the climate. Since the study area falls in the vicinity of Little Ran of Kachchh where the rain fall is marginal, always a chance to lose the water from the sourcess rapidly and leaves it as a dry land compared to any other region of Gujarat. Now the water remains only in remote village water tanks where water is lifted from the wells within the tanks itself. So the availability of good clay became very limited.

Now, one can see how the potters of the study area are reacting to the situation. Some potters continue the tradition of potting while some of them just shifting to some other means. At Bavpur (W1), the potter collect the clay from the forest and mixing it with the fine clay from the village tank where water is present throughout the year, but limit his production in to few pieces per day and prefers to throw small vessels as an adaptation to the changing environment. Moreover, the potter prefer mixing and throwing on the wheel prior to the sun rise as it is essential to curtail the speedy water loss during the time of potting. In the case of Jajasar (W2) where the potter is famous for his water pots, really gets going. Here, the members of the family is actively engaged in potting and the micro level specialization allows the potter to bring a kind of accuracy in all stages of production and saving the most precious time between each stages of manufacturing. The use of electric wheel and more number of kilns help him to achieve the target within the time. Though, almost all the potters were forced to go for a compromise in quality during the summer season the potter at Jajasar keeping the standard. Since the water storing pots are the most demanding shape, the potter became expert and known for water pots.

In case of Mota Bela and Nana Bela (W4 and W5), the potters shifting the gear in to brick manufacture where the workability of the clay hardly matters compared to potting. In both the villages the potters basically get the clay from Bavpur and from the forest between Bavpur and Jajasar and there are some difficulties in acquiring the raw material. So, here the potters go for a different means of adaptation for a period of time and come back to the profession when the nature favors the production.

From the above discussion it is clear that the reduction in variability or uniformity of ceramic production can be attributed to a number of variables such as the unfailing and constant demand from the part of consumer, agreement or promise offered by the potter in the quality of finished products, skill of the potter to

withstand the challenges of consumption needs and market competition, direction or authority which offers assurance throughout the stages of production and distribution, nature of the material and tools preferred by the potter, clay selection and method of processing. So, specialization requires a specific degree of concentration and amalgamation of quality, skill, technique, power, experience, marketing strategies etc backed by a supportive environmental set up.

Thus, on the whole it is evolved that degree of specialization cannot be attributed to part time or full time specialist. It is not only the time which spent on potting, but also the technology involved from selection of raw material to marketing, the skill of the potter, demand of the product and environment itself determine a particular ‘Standard’ in craft production.

4.4 Section IV Morpho Metric Analysis

Morpho-metric Analysis has been carried out on ceramics from Bagasra to see the standardization existed and or to understand the degree of variation existed between the major production units. This is an attempt to unearth the hidden elements like specialization, skill, standardization, mode and organization of production. This study deals with samples (ceramic vessels) from archeological context, where there is no control on any of the parameters of production, organization or distribution. The analysis was carried out in the same mode of experimental study (ethnographic model) carried out at the traditional potters workshops around Bagasra Village. But here, parameter like height of the vessels is not considered for analysis because vessel height required full size vessels and is seldom available in archaeological context. The parameters were selected with caution as it may reflect the inherent variation of the vessels and at the same time, possible to retrieve in a decodable format. Thus, the data was prepared in a metric format. The statistical method of coefficient of deviation has been used to estimate the percentage of variation of each parameter. The variations of vessel attributes were devised individually and later clubbed together to see the total variation.

The major steps and formula used for analysis are as follows. The samples were selected based on their phase wise distribution. As far as the forms are concerned, the analysis restricted to rim forms because the round base forms were difficult to define and the diagonostic bases were rare. The parameters selected for analysis include the rim diameter, rim thickness, wall thickness, lip thickness and brim thickness.

The analysis is concentrated on the major shapes like pots, bowls, basins and dishes because they are the vessels shapes that are in regular use and produced in good numbers. As far as the major wares are concerned, an initial attempt was made to include all the possible wares for analysis but it was found that except in the Red Ware, none of the other Wares of Bagasra failed to produce adequate number of samples for analysis in phase wise and shape wise. Thus, the analysis is restricted to the Red Ware. Though, even in some shapes (Phase I dish) failed to meet the required samples for analysis.

The following table (Table 4.7) shows the phase wise distribution of the major shapes and their variation in percentage. Effort has been made to see that the samples are reorganized in a standard format so that the analysis may able to produce result in similar pattern. In case of rim diameter the variation is recorded in centimeter (CM) while in case of other parameters, millimeters (MM) has been used as scale for recording the variation due to the smaller size. Finally, after devising the mean deviation, all other measurements were converted in to centimeters and tried to find the variation.

Table 4.7 Phase wise variation of Red ware Vessels from Bagasara

Phase wise Variation of Vessels at Bagasra								
		Rim Dia (cm)	Rim thickness (cm)	Wall thickness (cm)	Lip thickness (cm)	Brim thickness (cm)	Total Variation (%)	
	Pot	0.01	0.11	0.15	0.15	0.38	0.523/5=0.1046x100=10.46%	22.11%
Phase I	Dish	0.15	0.16	0.15	0.15	0.1	0.715/5x100=14.3%	
	Bowl	0.042	0.42	0.37	0.54		1.372/4x100=34.3%	
	Basin	0	0.3	0.3	0.37	0.5	1.47/5x100=29.4%	
	Pot	0.013	0.11	0.19	0.12	0.09	0.523/5=0.1046x100=10.46%	
Phase II	Dish	0.066	0.6	0.75	0.69	0	2.106/5x100=42.12%	
	Bowl	0.023	0.22	0.2	0.25		0.693/4x100=17.13%	
	Basin	0	0.5	0.5	0.66	0.66	2.32/5x100=46.4%	29.07%
	Pot	0.006	0.06	0.07	0	0.4	0.536/5=0.1072x100=10.72%	
Phase III	Dish	0.06	0.5	0.06	0.06	1.3	3.06/5x100=61.2%	
	Bowl	0.013	0.14	0.12	0.16		0.433/4x100=10.8%	28.08
	Basin	0	0.33	0.25	0	0.9	1.48/5x100=29.6%	
	Pot	0.0086	0.084	0.112	0.111	0.33	0.6456/5=0.129x100=12.91%	16.58%
	Dish	0.04	0.4	0.5	0.45	0.64	2.03/5x100=40%	
Phase IV	Bowl	0.009	0.012	0.12	0.02		0.161/4x100=4.02	
	Basin	0	0.47	0	0	0	0.47/5x100=9.4%	

4.4.1 Phase wise variation of Ceramic from Bagasra

From the above table (Table 4.7) it is clear that among the four shapes considered for analysis pots remain the most consistent and present least variation. Here, the total variation of RW from Phase I to Phase IV is 10 to 13% while phase I shows the least variation of 10.46%. The maximum variation of Red Ware pots is observable at Phase I (13%) and at Phase IV (12.91%) while Phase II and III exhibit a variation of 10.46 and 10.72% respectively. As far as the attribute variation is concerned rim diameter is the least variant (Fig No). In case of all other shapes the rate of variation fluctuates from phase to phase and from shape to shape.

As far as the Phase I variation is concerned, the morpho metric data shows pots as the most standardized and less variant among all shapes. As far as the attribute variation of pots are concerned rim diameter exhibit the least variation of 0.018 cm. The brim thickness shows the maximum variation of 0.38 cm while wall and lip thickness shows a variation of 0.15 cm. Altogether phase I pots produce a total variation of 0.06 cm i.e. around 13% (Figure 4.61). In case of dishes and Basins they are more or less consistent in phase I. In both the cases among the attribute of variability, rim diameter exhibits the least variation while brim thickness tops the chart. The variation ranges from 0.15 to 1.5 in case of dishes and 0.3 to 0.5 in basins. Phase I basins altogether produce a total variation of 29.4% while dished exhibits a total variation of 14.5%. As far as the bowls are concerned rim variation is again the lowest and is recorded as 0.042 while rim thickness, wall thickness and lip thickness are recorded 0.42, 0.37 and 0.54 respectively. Since it is not logical to estimate the brim thickness of bowls for estimating the variation of the shape, only the remaining four parameters were considered for analysis and maintained throughout the study.

Figure 4.61 Metric Variation of Major Shapes in Red Wares at Phase -I

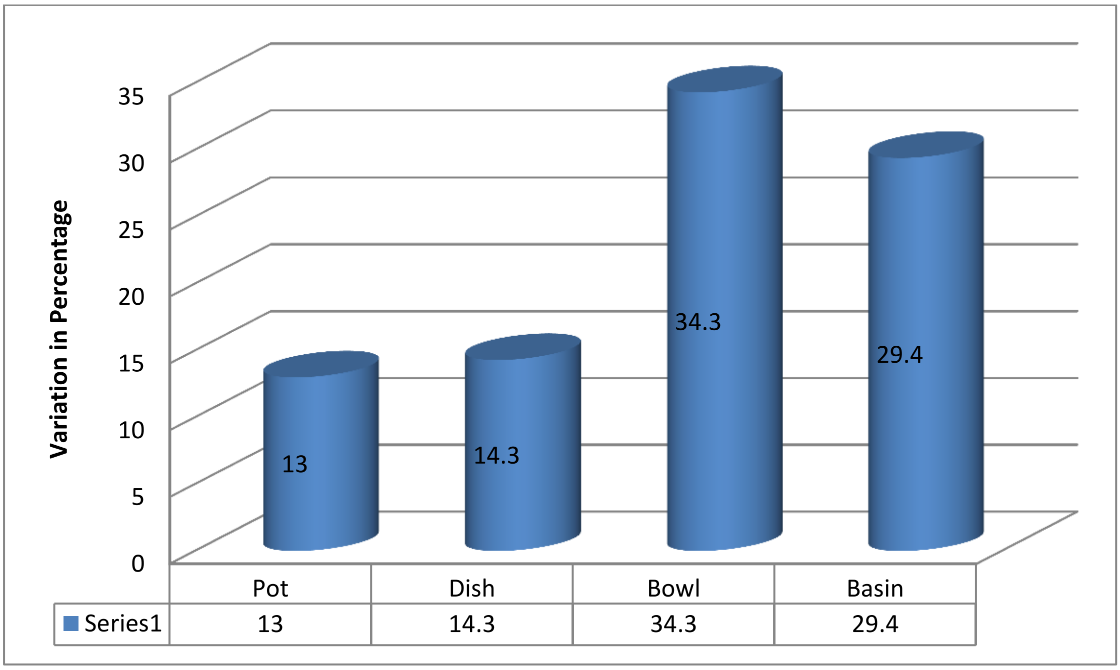
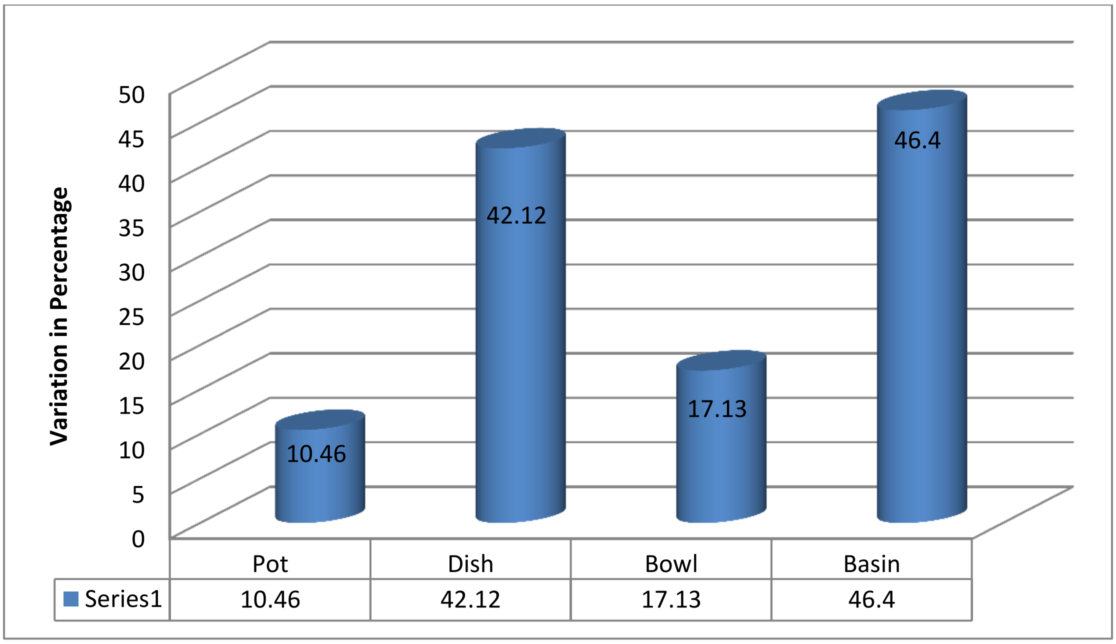


Figure 4.62 Metric Variation of Major Shapes in Red Wares at Phase -II



Thus, as a whole among the phase I vessels pots exhibit the lowest variation (13%) and bowls marked the maximum of 34%, while dishes and basins produce the variation of 14.1% and 29.4% respectively (Figure 4.61). From the above data the total variation of Phase I can be estimated as 22.11%.

In Phase II, no characteristic change can be observed from phase I. Here also pots are the less variant shape and exhibit a consistency where the total variation is observed as 10.46%. Bowls are the second vessel type with maximum standardization as they exhibit a total variation of 17.15%, while dish produces a total variation of 42.12% and basin with 46.4% (Figure 4.62). In all cases rim diameter is the least variant parameter as it stretches from 0.013 to 0.066cm. While, the wall thickness produced the maximum variation and which is from 0.19 to 0.5cm. Thus total variation of Phase II can be estimated as 29.09%.

A similar mode of variation is observable in Phase III as well where pots followed by bowls and basins produced a total variation of 10.72, 10.8, and 29.8% respectively. While, in case of dishes, it touches a maximum of 61.2% which is again highest among all shape and phase (Figure 4.63). Altogether the grand total of Phase III variation can be estimated as 28.08%.

Figure 4.63 Metric Variation of Major Shapes in Red Wares at Phase -III

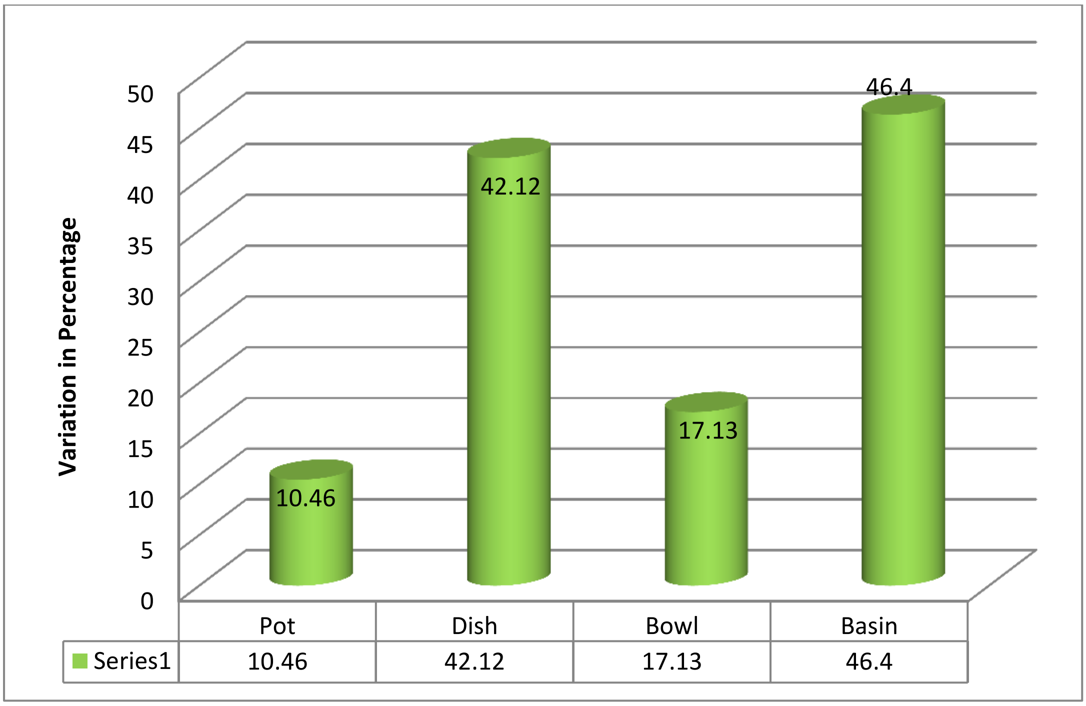
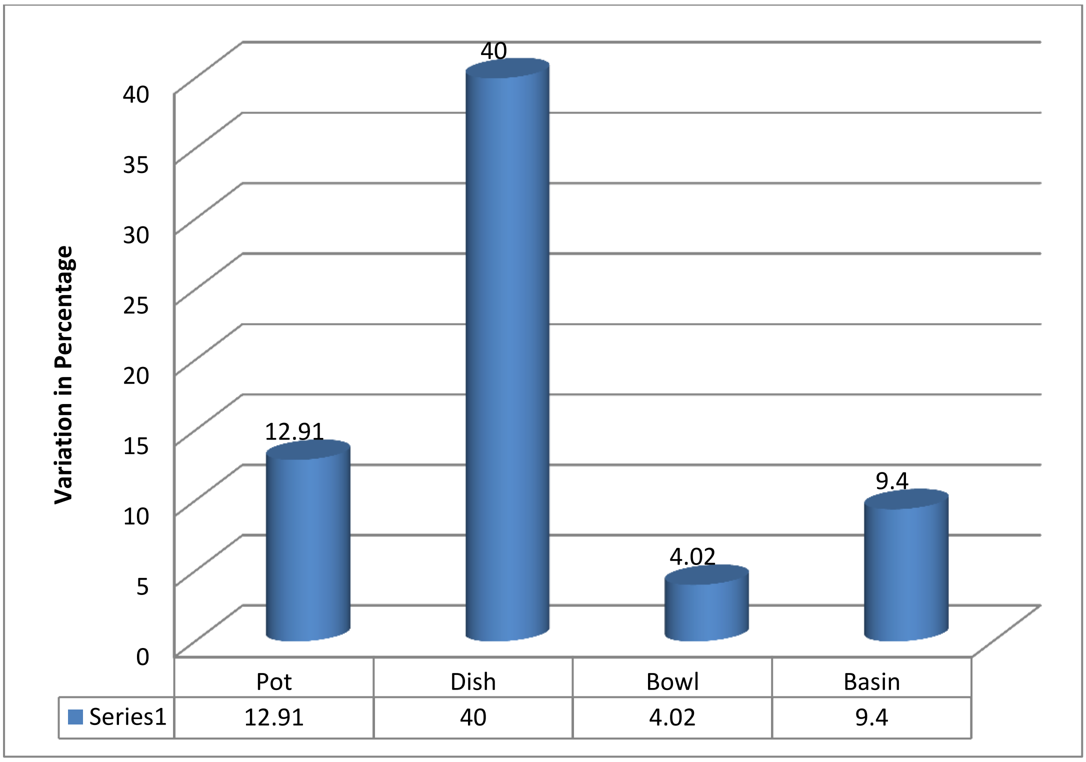


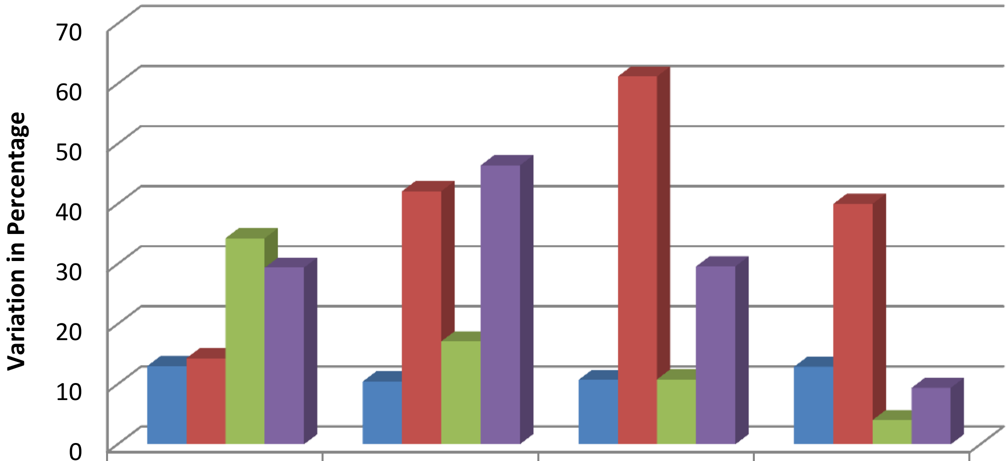
Figure 4.64 Metric Variation of Major Shapes in Red Wares from Phase -IV



The analysis produced an interesting result even though it need to be substantiated further. From the chart given below (Figure 4.65) among the four phases of cultural occupation, Phase IV shows least variation while Phase II and III have the maximum variation. As of the assumption, it can be stated that Phase IV is the most standard phase of ceramic vessels at the site. Now the question is that is it really Phase IV is the most organized phase of cultural occupation at the site?

Among the four structural phases of Bagasra, Phase IV shows the least variation. All the attributes of all the vessels except dishes, exhibit a very minimal variation as it varies from 0, 0086 to 0.12cm. While, dishes produce a variation stretching from 0.04 to 0.65 cm. Even though, compared to the variations of other phase vessels they are quite marginal.

Figure 4.65 Phase wise Variation in Red Wares Vessels from Bagasra.



	Phase I	Phase II	Phase III	Phase IV
Pot	13	10.46	10.72	12.91
Dish	14.3	42.12	61.2	40
Bowl	34.3	17.13	10.8	4.02
Basin	29.4	46.4	29.6	9.4

Among the vessels bowls are the most standard shape i.e. 4.02% variation while basins pots and dishes shows a variation of 9.4. 12.91 and 40% respectively (Figure 4.64). Altogether Phase IV produces a total variation of 16.58% which is lowest among all the four phases of occupation of the site.

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Chapter 5 : Discussion

The present chapter deals with the discussion of the analysis that has been carried out on the ceramics from Bagasra. Here, the results were analyzed from the point of typological variations, differences in the manufacturing processes and provenance of raw materials revealed from thin section studies. To derive meaning out of the micro structural features of the ceramics, support from ethno archaeological samples were also incorporated.

5.1 Typological Analysis

As far as typological analysis is concerned, it has been used to order the ceramics and to establish the relative chronology of the site. The data thus generated were used for further analysis. Here, the samples were grouped based on major types, by recording their similarities and differences. This was followed by arranging them in space and time. All visible parameters were considered for grouping and sketches were prepared for the representative types. Further, the drawings of the samples were compared with other excavated Chalcolithic sites with the help of the published excavation reports. A comparison of drawings with major excavated sites like Lothal, Rangpur, Nageshwar, Nagwada and Loteshwar helped in establishing an inter -site relationship between Bagasra and the rest. This exercise

well places Bagasra in the chalcolithic map of Gujarat with Mature Harappan traits. The presence of mature urban elements like Black on Red Ware with naturalistic and geometric designs, shapes like beakers, dish on stand, perforated jar/pot, 'S' profile jar etc, in association with the Classical Harappan artifacts like the inscribed steatite seals, terracotta sealing, beads of steatite, faience, lapis lazuli, amazonite and carnelian, long blades of Rohri chert, shell bangles with chevron marks, terracotta cart frames and triangular cakes, copper, bronze spear heads and chisels indicate the urban character and supports the observations derived from the ceramic studies. The study of the ceramics from Er13 and Eo3 in relation with the structural and antiquity record facilitated an intra- site comparison.

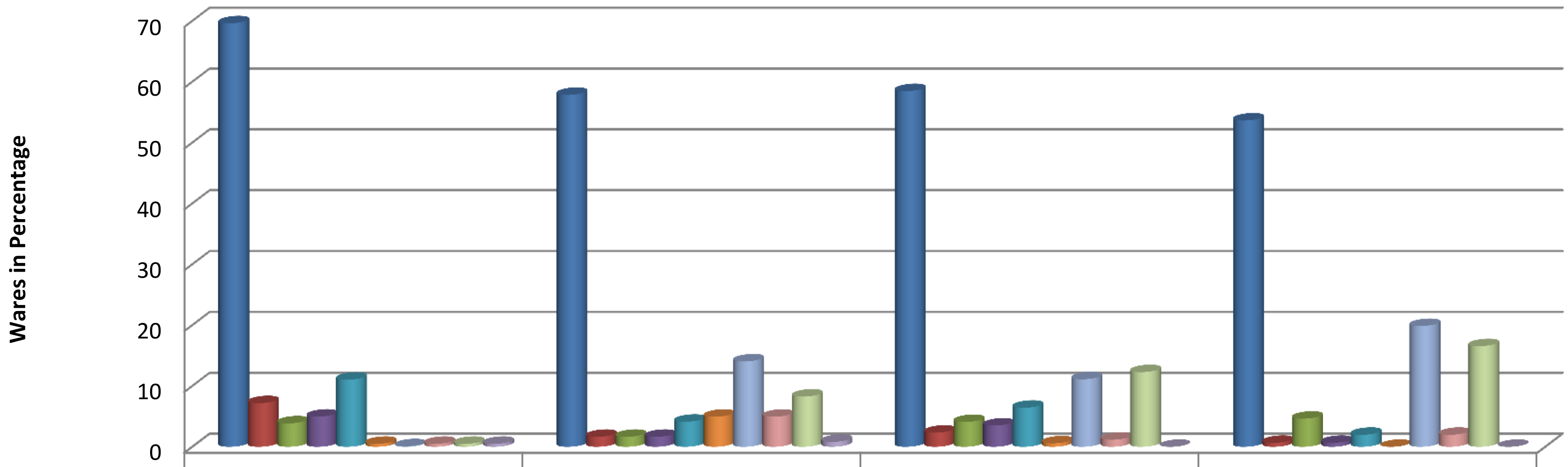
Here, to facilitate an intra-site study, based on the location and structural activity within the trenches, samples have been divided in to inside and outside fortification. As far as the location is concerned, Er13 is located exactly over the fortification wall and cutting down in to inside the fortification where as Eo3 has been located towards the southern extension of the mound, i.e., outside the fortification.

The preliminary analysis of the craft items at Bagasra (Bhan et.al. 2004) suggest the existence and concentration of different activity at the site . An attempt has been made to demarcate an activity area at the site based on the antiquities and structural features. The area inside the fortification shows the evidence of intense craft production like the shell bangle manufacturing (workshop), stone bead manufacturing (raw material storage and lithic debitages showing different stages of chipping and bead rough outs showing stages of manufacturing) and faience making (raw quartz powder). But in case of outside the fortification the craft items recovered is mainly restricted to some copper artifacts. In proportion to the size of the settlement, the percentage of copper artifacts recovered suggest that some copper working activity was prevalent at the site, even though we don't have any direct evidence except few crucibles. So, the area inside the fortification can be

treated as a craft area with craft items like shell bangles and other shell products, beads and faience while outside fortification can be treated as an area of copper working. Thus, the variations in the percentage of ceramics both inside and outside of the fortification can be treated as the result of the differences in economic activity.

It may be noted that the settlers of Bagasra continued to use the same type of ceramics from earlier to the later phase. No addition of a new type is visible in the site at any point of time. However, the frequency keep on varying and this could be explained as the nature of the activity witnessed. Irrespective of the phase, Red Ware dominates with more than 90% of the total assemblage. The other major wares present are Red Ware with Buff Slip (RWBS), Buff Ware, Buff Ware with Red Slip (BWRS) and Black and Red Ware (Figure 5.1). The distribution of these wares show that there is an increase in percentage of RWBS from phase I to IV while Black and Red Ware is restricted to inside the fortification and is very less in its quantity. Here, the so called BRW sherds are found to be coarse or medium coarse with thick red polish and are confined to pots and basins (body parts) only. It may be a different type which is produced locally. In case of Buff Ware, it shows a decrease in its percentage from phase I to Phase IV. While Phase II can be identified as the most consolidated phase for Buff Ware. A similar mode of distribution can be seen inside the fortification for BWRS. But outside the fortification it is very consistent in its percentage. RWBS is the second dominant ware at Bagasra (Figure 5.2). It shows an increase in its percentage from phase I to IV both inside and outside the fortification. It clearly shows that a tradition distinct from the typical Black on Red Ware was available at Bagasra throughout the period of habitation. The percentage of the fine Red Ware is quite consistent.

Figure 5.1 Phase wise Distribution of Major Wares Present inside the Fortification from Bagasra

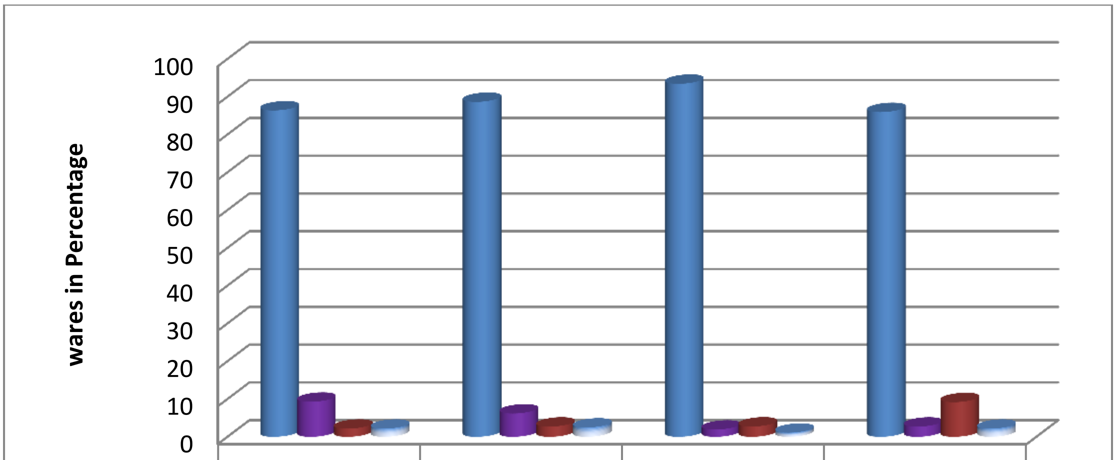


	IV	III	II	I
RW	69.61	57.85	58.47	53.64
BurnishedRW	7.18	1.65	2.33	0.66
Buf W	3.86	1.65	4.09	4.63
Bichrome	4.97	1.65	3.5	0.66
CSW	11.04	4.13	6.43	1.98
MRW	0.5	4.95	0.58	0
RWBS	0.1	14.04	11.11	19.86
BWRS	0.5	4.95	1.16	1.98
GRW	0.5	8.26	12.28	16.55
BRW	0.5	0.82	0	0

It also shows a steady development along with the site which can be attributed as a local tradition.

Even though the major wares remain the same, a reduction in variability or frequency is observable in the wares inside the fortification after phase II. But at the same time a very clear boost up is observable outside the fortification after Phase II (Figure 5.2). An increase in the quantity and quality of the ceramics can also be observed towards the third and fourth phase at Bagasra.

Figure 5.2 Phase wise Distribution of Major Wares Present outside the Fortification from Bagasra

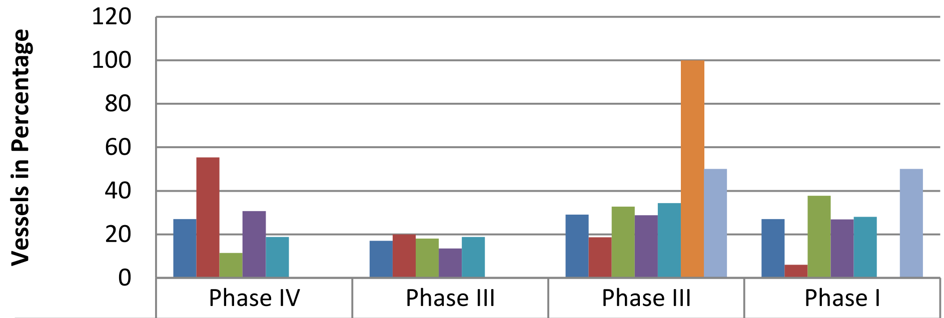


	IV	III	II	I
RW	86.37	88.64	93.42	85.94
RWBS	9.28	6.17	1.91	2.7
Buff Ware	2.16	2.71	2.73	9.18
BWRS	2.16	2.46	1.09	2.16

As far as the shapes are concerned, pots, bowls, basins and dishes are the major shapes. Even though, the shapes like dish on stand, beaker, goblet, lid, bottle etc are present, they are not found either in diagnostic forms or in sparse. It is the pot that dominates the shapes inside the fortification while at phase III and IV the number of the pots were over taken by the bowls (Figure 5.3). But in case of outside the fortification it is the pot that dominates in all the four phases and bowls stands second (Figure 5.4) The basins show a considerable decrease in its

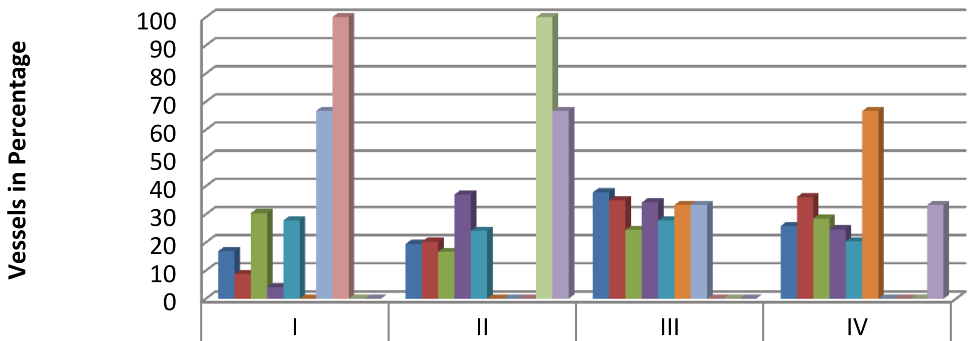
percentage from Phase I to IV both inside and outside the fortification, while dishes are consistent in all the phases both inside and outside the fortification.

Figure 5.3 Phase wise Distribution of Major Vessels Inside the Fortification



	Phase IV	Phase III	Phase III	Phase I
pot/jar	27.04	17.01	29.01	27.05
bowl	55.33	20	18.66	6
basin	11.47	18.03	32.78	37.7
dish	30.76	13.46	28.84	26.92
disn on st	18.75	18.75	34.37	28.12
goblet	0	0	100	0
p.pot	0	0	50	50

Figure 5.4 Phase wise Distribution of Major Vessels Outside the Fortification



	I	II	III	IV
Pot/Jar	16.86	19.45	37.84	25.83
Bowl	8.73	20.23	34.92	36.11
Basin	30.39	16.66	24.5	28.43
Dish	4.1	36.98	34.24	24.65
Dish on Stand	27.77	24.07	27.77	20.37
Goblet	0	0	33.33	66.66
Beaker	66.66	0	33.33	0
Bottle	100	0	0	0
Lamp	0	100	0	0
lid	0	66.66	0	33.33

Thus as a whole, a shift in the nature of the food consumption is observable both inside and outside the fortification from the dominance of bowls over pots after phase II. A decrease in the percentage of basin from Phase I to IV also shows a similar tendency (Figure 5.4). A comparison shows that the habitation inside the fortification witnessed this change much before the habitation outside the fortification. It can be presumed that the upper strata of the society may get acquainted with the change suddenly while the lower strata of the society took more time to adapt to the shift in economy and the change. What so ever irrespective of the wares, shapes and the distribution of other antiquities and structures one can easily make out that the site was going through a change from phase I to IV and Phase II and the beginning of Phase III can be considered as the most economically consolidated period which can be equated with the Mature Harappan phase of Gujarat.

5.2 Thin Section Analysis

After typological classification, representative samples were selected for thin section analysis. The method was initiated mainly to investigate the clay paste preparation techniques involved at Bagasra or the technique of manufacturing and the provenance of the raw material. Before deal with the provenance and technology of clay paste preparation and stages of production it is essential to have an idea about the nature of the raw material i.e., the clay. The clay can be put as a fine grained earthy material that became plastic or malleable when moisture (Rice 1987: 37). Clay refers to a particular group of minerals, a category of rocks and soils in which these minerals predominate and a specific particle size grade that constitutes the major fraction of those minerals rocks and soils (Rice 1987: 37).

For a petrologist, the mineralogical composition and depositional context is important in identifying the quality and provenance of the clay source. However, while using thin-section methods the emphasis is given to the detritus present within the clay as recognizing clay mineralogy is beyond the scope of the method.

But for a traditional potter the above said things hardly matters. He simply examines the plasticity and workability of the clay. He recognizes the quality of clay by naked eyes and textural composition by his feel. He collects the clay either from the surface or after digging out. That clay may include many impurities. Thus after collection, the clay may pass through several stages like crushing, sifting, levigation, elutriation etc before it achieves the workability. On the process, the potter may either remove or add ingredients to improve the workability. During and after throwing on the wheel, a coat of clay paste has been applied as per the requirement and function of the vessel. Thus it is clear that for an archaeologist it is not the natural clay or clay minerals that he comes across in archaeological ceramics are important rather it is a mixture or a combination of different clay, rock and even vegetable structures. Moreover, the internal property of the clay itself may change as the vessels were heated for strength in kilns. So all these alterations and physical phenomenal has to be considered while one deal with the archaeological ceramics.

Here, the discussion mainly deals with the fabric groups established after a qualitative and semi quantitative textural analysis. The total ceramic assemblage fall in to ten fabric groups and three sub groups. These groups and sub groups sometimes retained and but often overlapped or cut across the conventional categories of wares and forms. The differences between the fabric groups are both textural and mineralogical. Physical test of hardness and apparent porosity carried out on the selected samples reveals different aspects of production and surface treatment of these wares.

Quartz and feldspar are the dominant minerals in almost all fabric groups. They together consist of 80-90% of the total mineral suite. Quartz is found as clear and with undulatery extinction. It is also present in the form of schist, sandstone and crypto-crystalline silica. They may vary in its size and shape. In case of feldspar

Table 5.1 Distribution of Major Minerals Present at Different Fabric Groups from Bagasra

Sample No	Group	Quartz	Pls Feldspar	Alt Feldspar	Calcite	Mica	Augite	Olivine	Rock	Iron Oxide	Groge	Hornblende	Argilacious
1779	A	32	2	50	8	0	4	0	2	0	0	2	0
2071	A1	33.33	0	53.33	11.12	0	2.22	0	0	0	0	0	0
411	B	53.12	0	40.62	3.12	0	3.14	0	0	0	0	0	0
351	B1	46.87	0	34.37	9.37	0	3.12	3.12	0	3.15	0	0	0
480	C	4.54	0	47.72	34.09	0	0	0	0	4.54	4.54	0	4.57
42	C1	29.41	0	37.25	27.45	3.93	0	0	0	0	0	0	1.96
1019	D	8.82	35.29	35.29	7.94	0	0	5.88	0	1.49	0	5.29	0
106	E	31.37	0	63.36	1.96	0	1.34	0	0	1.97	0	0	0
36	F	9.09	0	54.54	15.9	15.9	0	0	0	2.27	2.3	0	0
1012	G	29.16	12.5	33.33	20.32	0	0	0	0	1.63	0	3.06	0
3	H	8.57	22.85	22.85	22.85	4.57	4.33	11.14	2.85	8.57	5.71	5.71	2.85
247	I	14.54	1.81	34.54	41.81	0	0	0	1.81	0	2.69	2.8	0
1334	J	0	0	25	4.16	54.16	0	0	0	12.5	4.16	0	0

variety of both orthoclase and plagioclase feldspar is present. They are present in fresh and altered form (Table 5.1). Calcite is the third major mineral group. It is present in both pure crystalline form and also in the form of carbonates. The carbonates occur mainly as crypto crystalline calcite finely disseminated in the matrix as an intimate part of the clay paste, consolidated aggregates of calcreates or kankar fragments. Other major minerals present in the clay are augite, olivine and hornblende.Bioclasts are also present in the clay paste in small amount, mainly shells/mollusks. Patches of iron oxides were also present throughout the sections as opaque black spots and grogs in deep red or black color.

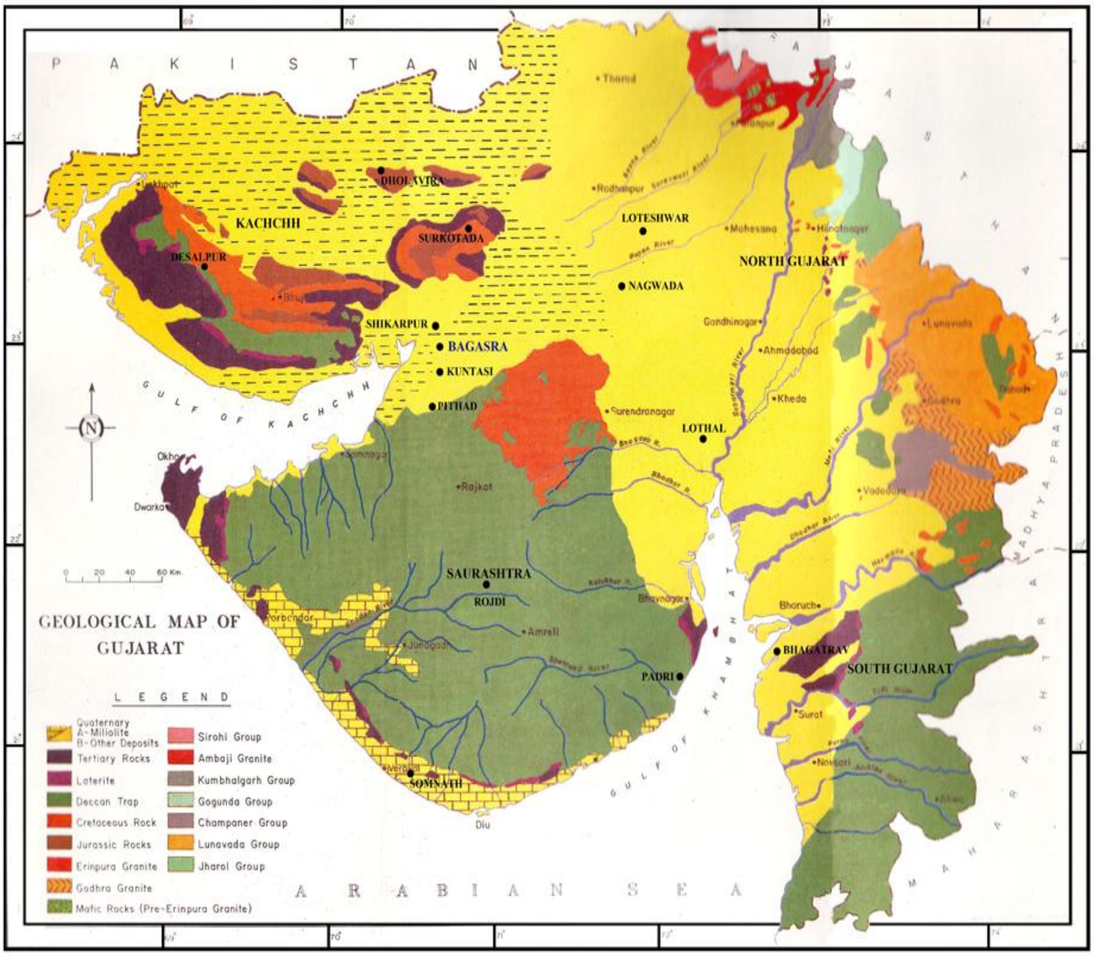
5.2.1 Geology of the Region in and Around Bagasra

Physiographicaly the state of Gujarat can be classified in to three major zones. They are the Mainland Gujarat, Saurashtra and Kachchh (Figure 5.5). The Mainland Gujarat can further divided in to sub zones like the Eastern Rocky Highlands and the Western Alluvial Plains. The Eastern Rocky Highlands are an extension of the Sahyadri, Satpura and the Aravalli moundains. The Sahyadri in the southern part beyond Tapi river shows an altitude variation from 150 to 300m. The hilly terrain between the Narmada and Mahi rivers, referred to as the Vindhyan range provides an example of topography typical of Archaean metamorphic and granitic rocks. While, the Western Alluvial Plains comprises of a thick pile of unconsolidated sediments deposited by a combination of fluvial and Aeolian agencies during the Quaternary period. These form the western half of the Mainland, including the coastal plains and fall within the altitude range of 25 to 75 m with a gradual seaward slope. The eastern parts rise gradually towards the hilly areas and provide a somewhat mixed landscape. The plains of North and Central Gujarat in their deepest parts are very thick and could be as deep as 500m at places and across these plains flow the major rivers of Gujarat (Merh 1995).

The peninsula of Saurashtra forms a rocky table land fringed by coastal plains, a major portion of which is occupied by the Deccan lava flows. The central part is

made up of an undulating plain broken by hills and considerably dissected by various rivers that flow out in all directions. The hills in the central part of Saurashtra can be divided into northeastern and southwestern series. The northeastern series are generally sterile except in the extreme west of Barda Hills. The central highlands form the water parting between the rivers, which run radially forming the drainage of the Peninsula. The eastern fringe of Saurashtra is a low lying ground marking the site of the former sea connection between the Gulf of Kachchh and Khambhat. To the north the Saurashtra peninsula is flanked by the Gulf of Kachchh and to its west and south lies the Arabian Sea.

Figure 5.5 Map Showing the Geomorphology and Location of Bagasra



Adapted Merh 1995

The Kachchh is divisible in to four geomorphic types. They are the Rann, the low-lying Banni Plains, the Hilly Regions, and the Southern Coastal Plains. The

Rann forms a unique salt encrusted waste land rising only a few meters above the sea level. It is devided by the rocky high land in to the Great Rann to the north and the Little Rann to the East. The Banni plains lie between the great Rann and the rocky mainland, rise only a couple of meters above the Rann Surface and form a shrubby and grass land area. The hilly region consists of three units. They are the Island belt, The Kachchh Mainland, and the Wagad. The southern coastal plains border the mainland against the Gulf of Kachchh in south and the Arabian Sea in the west.

5.2.2 Drainage

As far as the drainage pattern is concerned the Mainland shows two distinct sets of rivers. They are the rivers in the northwestern part that arise from Aravalli hills and flow in to the Rann of Kachchh (Rupan , Saraswati and Banas) and the rivers draining the central and southern parts flow in to the Gulf of Khambhat and Arabian sea (Figure 5.5). The northern rivers are shallow and have wide sandy channels in their lower reaches while the rivers draining central and southern Gujarat are deeper and carry more water (Merh 1995).

The major southern rivers are Tapi, Narmada, Mahi and Sabarmati. The drainage of the Surashtra Peninsula shows a radial pattern. The various rivers and streams flow in all directions from the central high mound. Of the few rivers, Bhadar is the longest which originates in the central highlands east of Jasdan and flows westward for a distance of 260 km before meeting the Arabian Sea. The tributaries Karnal, Utavali, Phophal, Moj and Vinu meet the river between Jetpur and Katina. On the southern coast of Saurashtra several smaller streams viz, Dhanvantri, Raval, Machundri, Singoda, Hiran and Saraswati are encountered. Of these, Hiran and Saraswati are the prominent and originate from Gir hills. Among the east flowing rivers that meet the Gulf of Khambhat are the Kalubhar, Sukhbhadar, and Bhogavo. Bhogavo orginates in the hills of Chotila and joins Sabarmati near its mouth. The streams flowing in to the Gulf of Kachchh which are restricted to the

northern part are comparatively smaller and more or less seasonal. These include Ghee, Sihan, Fuljar, Sasoi, Rangmati, Nagma, Ruparel, Kankavati, Und, Aji, Demai, Machhu, Godadhro, Bambhan, Phulka, and Chandrabhaga.

The Kachchh Peninsula is charecterised mostly by ephemeral streams which carry water during monsoon only. The central highland forms the main watershed with numerous streams draining the slopes in a radial pattern. Most of the rivers are small in length and carry little water. The major south flowing streams are the Naira, Kankawati, Nagwanti, Sakra and Lerah. Streams flowing southward from the western part of the highland are the Rakhi and Mitti that flow in to the Arabian Sea. East flowing rivers are the Sing and Sakra that meet the Gulf near the mouth of little Rann.

It is interesting to observe that some rivers like Kankawati, Kaswali and Bhukhi show quite broad river beds with steep cliffs and occurrences of miliolite rocks on their banks. The drainage features of Kachchh marked by relatively well carved valleys but very little water flowing today point to a vigorous stream dissection in the past when the area experienced a wet climatic phase.

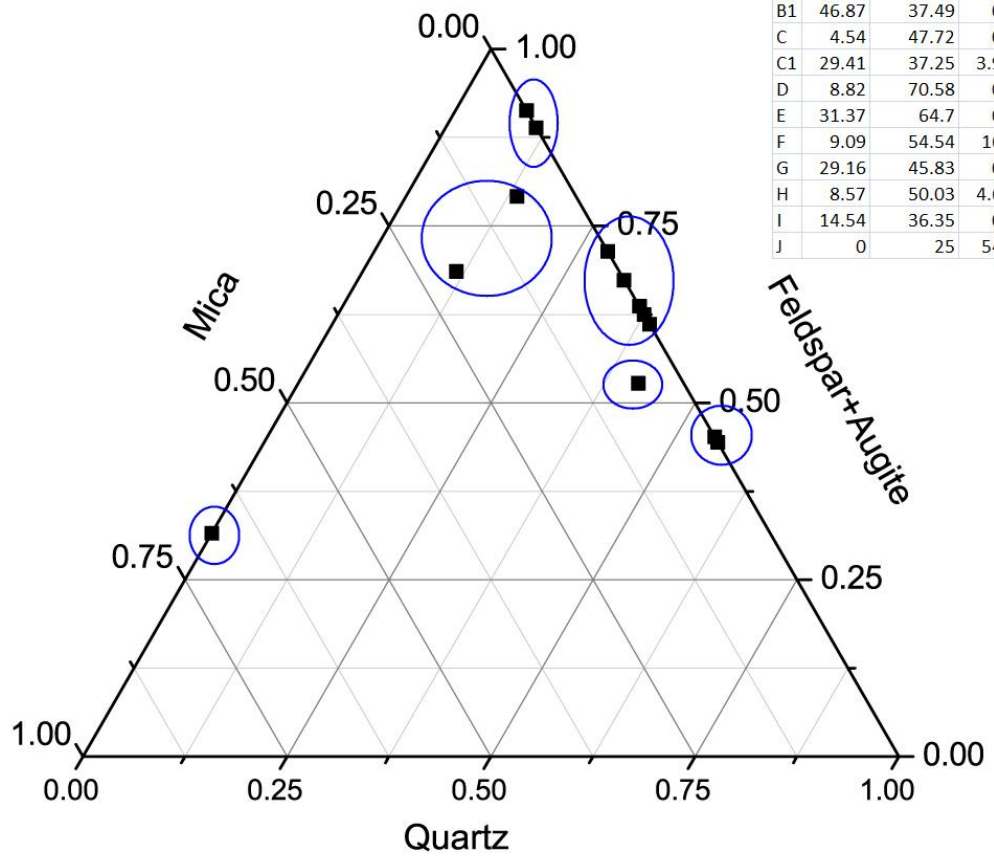
5.2.3 Provenance of the Raw Material and Ceramics from Bagasra

The major minerals present in the samples at Bagasra are the quartz, plagioclase feldspar, augite and mica. As far as geology is concerned, quartz is found abundantly in almost every deposit while plagioclase feldspar and augite form the basic constituent of basalt. Mica is present in the acid and basic intrusive. Thus, the mineralogy of the detraitals at Bagasra shows a mixed nature. In all possibilities one may assume that, the mineralogy of the detraitals in the thin sections are closely relatable in terms of composition to any clay deposit, that is likely to exist in the central Gujarat alluvium. Therefore, pinpointing a raw material provenance for the ceramic production centers is a difficult task. However, an attempt is made to understand the broader provenance areas by studying the mineralogy of the detrails by grouping them. This grouping is done

based on the composition of rocks found in and around the area by assuming that the detritals in the sediments are derived from there. Thus a ternary diagram with quartz on the X axis, feldspar and augite on the Y and mica on the Z axis has been plotted. The figure (Figure 5-6) shows four major clusters. Fabric group A, A1, G, E and I forms one major cluster while fabric group C, and D, forms the second cluster and fabric Group F and H forms the third cluster. Fabric groups B and B1 from the fourth cluster. At the same time Fabric groups like C1 and J does not show any relation with any of the above said groupings and stand apart from the groups and can be considered as anomalies.

Figure 5.6 Ternary Diagram showing the Distribution of Non plastic Inclusions from Bagasra Ceramics

	Quartz	Felds+Aug	Mica
A	32	56	0
A1	33.33	55.55	0
B	53.12	43.76	0
B1	46.87	37.49	0
C	4.54	47.72	0
C1	29.41	37.25	3.9
D	8.82	70.58	0
E	31.37	64.7	0
F	9.09	54.54	16
G	29.16	45.83	0
H	8.57	50.03	4.6
I	14.54	36.35	0
J	0	25	54



The fabric description shows that group A, A1, G, E and I are feldspar –quartz fabric with calcite, augite olivine and iron oxide as subsidiary minerals. The frequency of the non plastic inclusions ranges from 30 to 40% while the size of the non plastic inclusions varies from 100 to 150 microns. The inclusions are angular to sub angular in shape. The grain size distribution is bimodal in character. The inclusions seem to be fresh and the section also contains crushed basalt (rock) and grog which indicate the addition by the potter. Thus, it represents a different tradition of potting at Bagasra.

While fabric groups C, C1 and D are distinct from the above as it is a feldspar calcite fabric with lot of cryptocrystalline calcite in it. Here, C1 is also included in the category even though, it stands different from the cluster hence it is a sub group of the C. It is a very fine fabric with 40 to 50% and the largest grain falls within the range of 200 to 400 microns. The shape of the minerals is angular and is fresh in appearance. Feldspar, calcite, quartz, augite and biotite constitute the mineral suite where feldspar along with calcite dominates the section. Impurities are also present in the form of grog and iron oxide patches are also visible throughout the section. Crypto crystalline calcite is the other notable feature of this category. The clay is ferruginous and the matrix is light to dark brown in color. From the difference in the major minerals and texture it can be presumed as a different tradition and these are the finest wares of Bagasra.

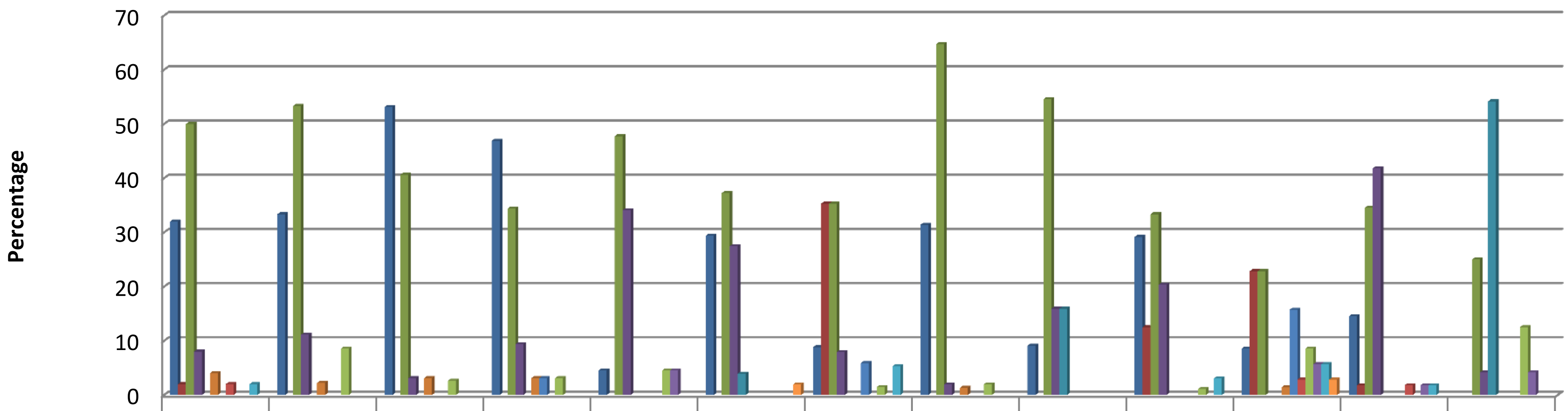
The difference in the mineral distribution of various fabric groups is clearly evident. Fabric Group F, and H shows their distinct nature. Fabric group J even though stands apart in the diagram shares the similar features with group F and H (Figure 5.7). In these groups mica is the dominant mineral followed by altered feldspar, calcite, augite and cryptocrystalline calcite. Mica is present throughout the section both as part of the matrix and as inclusion. The fabric is tempered with silt to very fine sand. The frequency of the nonplastic inclusions ranges from 10 to

20% while the section contains fresh feldspar along with altered ones. The most characteristic feature of these groups is the presence of the calcite crystals in aggregated form. The one and only notable difference among these groups is the variation of minerals in its percentage. The higher percentage of feldspar in fabric group F can be explained as due to the concentration of coarser particles which would have been the result of the addition by the potter. Thus, these two groups represent a textural difference rather than a source difference.

The fabric groups like B and B1 is quartz –feldspar fabric tempered with medium to fine sand and silt. The frequency of nonplastic inclusions ranges from 5 to 10%. Most of the inclusions are present as the part of the matrix. The size of the largest grain of Nonplastic inclusions ranges from 100 to 200 microns. They are angular to sub angular in shape. The voids are rare. The clay is ferruginous in nature. Quartz followed by feldspar (fresh and altered) dominates the section. Calcite and augite are present as part of matrix and also as inclusions. Crypto crystalline calcite is also present throughout the section. The other inclusions mainly include a few iron oxides and grog. Even though, rock pieces along with grog is also evident in the section. The fabric is well to moderately sorted and the grain size distribution is nearly unimodal to bimodal. Any orientation as such is not observable among the particles.

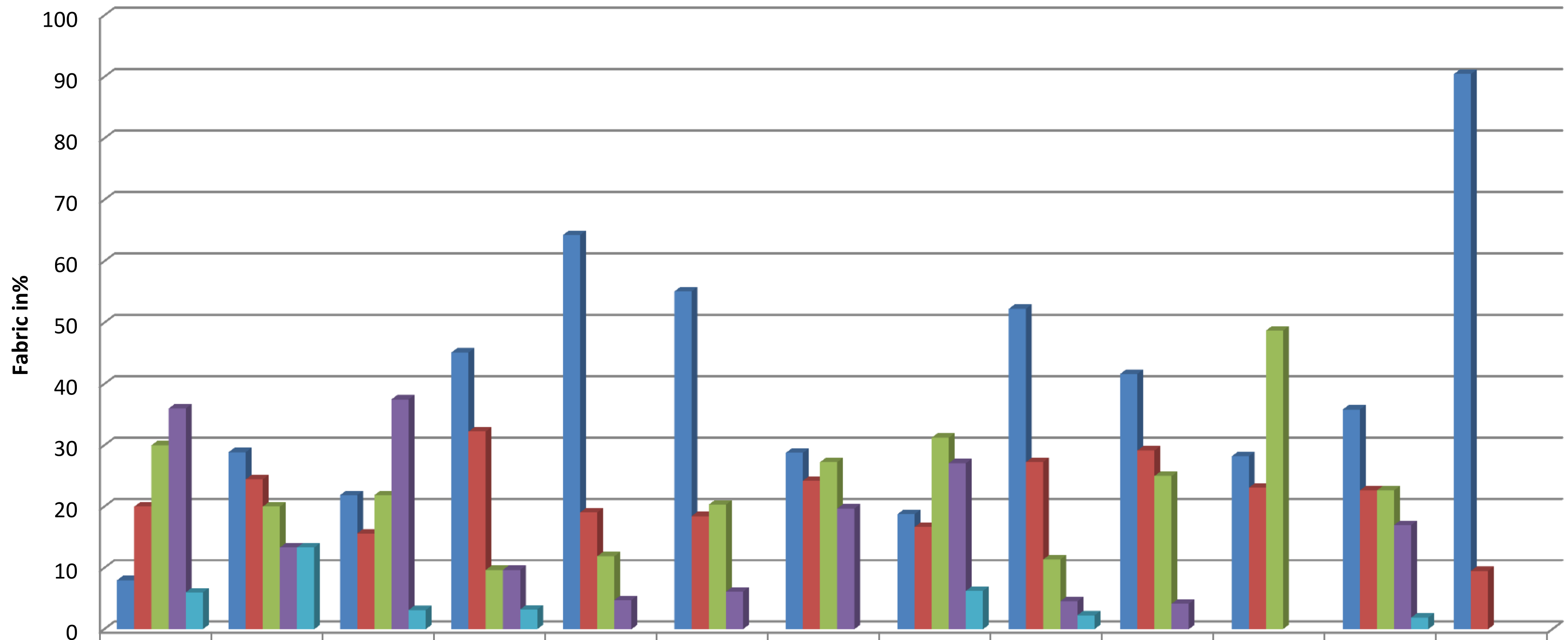
To sum up, the ceramics at Bagasra suggest procurement of clay from four distinct sources. The majority of the ceramics at Bagasra represented by Groups A, A1, E, G and I indicate raw material procurement from a single source. A second source is indicated by group F, J and H. The third source is represented by fabric group C, C1 and D while the fourth source is indicated by fabric group B and B1. Altogether Central Gujarat alluvium can be termed as the source of the ceramics at Bagasra and they were using the local clay source available to them.

Figure 5.7 Overall Distribution minerals in Fabric Groups and Sub Groups from Bagasra



	A	A1	B	B1	C	C1	D	E	F	G	H	I	J
quartz	32	33.33	53.12	46.87	4.54	29.41	8.82	31.37	9.09	29.16	8.57	14.54	
pls flds	2						35.29			12.5	22.85	1.81	
alt fls	50	53.33	40.62	34.37	47.72	37.25	35.29	64.7	54.54	33.33	22.85	34.54	25
calcite	8	11.11	3.12	9.37	34.09	27.45	7.94	1.96	15.9	20.32		41.81	4.16
mica						3.92			15.9				54.16
Augite	4	2.22	3.12	3.12				1.34			1.42		
olivine				3.12			5.88				15.71		
rock	2										2.85	1.81	
ironoxide		8.53	2.64	3.12	4.54		1.47	1.96		1.1	8.57		12.5
groge					4.54						5.71	1.81	4.16
hornblende	2						5.29			3.06	5.71	1.81	
Argilacious						1.96					2.85		

Figure 5.8 Overall Distribution of Fabric Groups and Subgroups from Bagasra



	A	A1	B	B1	C	C1	D	E	F	G	H	I	J
Silt	8	28.88	21.87	45.16	64.28	55.1	28.78	18.75	52.27	41.66	28.2	35.84	90.47
VFS	20	24.44	15.62	32.25	19.04	18.44	24.24	16.66	27.27	29.16	23.07	22.64	9.52
FS	30	20	21.87	9.67	11.9	20.32	27.27	31.25	11.36	25	48.71	22.64	
MS	36	13.33	37.5	9.67	4.76	6.12	19.69	27.08	4.54	4.16		16.98	
CS	6	13.33	3.12	3.22				6.25	2.27			1.88	

5.2.4 Clay Paste Preparation Techniques at Bagsara

The analysis of the fabric groups in relation with ware, texture and apparent porosity reveal some interesting features regarding the manufacturing techniques of ceramics at the site (Figure 5.8). Here the fabric groups falls itself in to four major ware groupings where fabric group A, D, E, F, I and J is dominated by RW of different textures. While group B is confined to Buff Ware and RWBS only. The third category consist of RW and RWBS mainly include fabric groups like G, H and Sub groups like A1, B1 and C1. At the same time, fabric group C is different from all other groups as it consists of all the ware categories like RW, RWBS, Buff Ware and BWRS.

The table given below (Table 5.2), shows the distribution of texture in different fabric group from Bagasra. Based on the size of the non plastic inclusions the textures has been classified in to silt, very fine sand, fine sand, medium sand and coarse sand.

Table 5.2 Textural Distribution of Fabric Groups and Sub Groups from Bagasra

Sample No	Group	Silt	Very Fine Sand	Fine Sand	Medium Sand	Coarse Sand
1779	A	8	20	30	36	6
2071	A1	28.88	24.44	20	13.33	13.33
411	B	21.87	15.62	21.87	37.5	3.12
351	B1	45.16	32.25	9.67	9.67	3.22
480	C	64.28	19.04	11.9	4.76	0
42	C1	55.1	18.44	20.32	6.12	0
1019	D	28.78	24.24	27.27	19.69	0
106	E	18.75	16.66	31.25	27.08	6.25
36	F	52.27	27.27	11.36	4.54	2.27
1012	G	41.66	29.16	25	4.16	0
3	H	28.2	23.07	48.71	0	0
247	I	35.84	22.64	22.64	16.98	1.88
1334	J	90.47	9.52	0	0	0

The analysis (Figure 5.8) shows that the fabric groups of Bagasra fall mainly in to four textural groups. The major textural groups of Bagasra are silt tempered (fabric group C, C1, F and J), silt to fine sand tempered (A1, D and H), fine to medium sand tempered (A, E and B), medium to coarse sand tempered (B, G and I).

Figure 5.9 Porosity of Different Fabric Groups from Bagasra

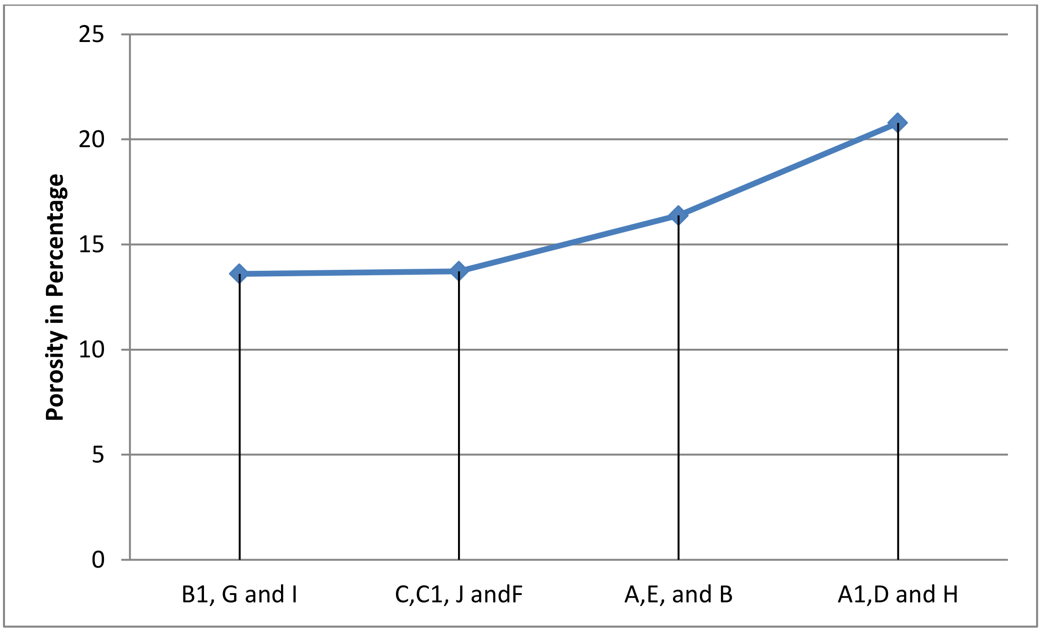
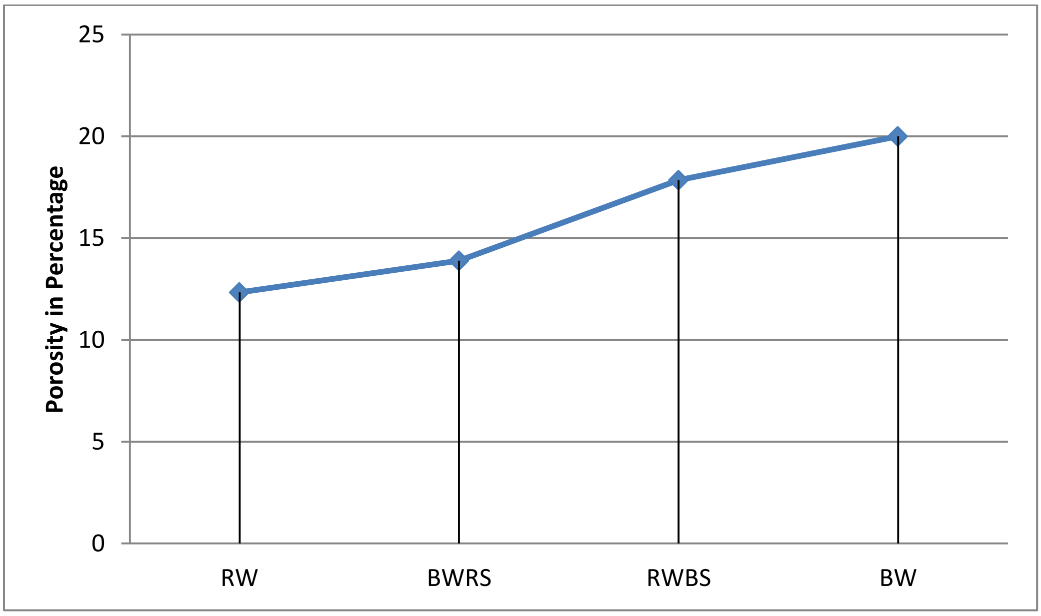


Figure 5.10 Porosity of Different Wares from Bagasra



The porosity of the different fabric groups (Figure 5.9) shows that group C, C1 and F has a porosity of 13 to 16% with an average of 13.72%. Group A1, D and H has a porosity of 15 to 25% with an average of 20.78%. Group A, E and B has a porosity of 15 to 25% with an average of 16.38%. Fabric group B, G and I has a porosity of 12 to 20% with an average of 13.6% respectively.

The porosity of the different wares (Figure 5.10) and fabric groups at Bagasra shows a similar trend of alteration which may suggest that there exist different technique of clay paste preparation for different wares.

Thus, on the whole the analysis of the fabric groups in connection with the Ware, texture and apparent porosity shows some interesting findings. As far as the Red Ware is concerned it is produced by using at least three different techniques. They are 1. Very fine to fine fabric texture with silt to fine sand as tempering material represented by fabric group F, J, D and I. 2. Medium fabric with fine to medium sand as tempering material represented by fabric group E. 3.Coarse Fabric with medium to coarse sand as tempering material represented by fabric group A. Red Ware with Buff Slip the second dominant category at Bagasra is a very fine to fine fabric with silt as tempering material where a fine to medium fabric is also available which is the slight modification of the same clay paste preparation technique by the potter. The textural groups of this category mainly include group G, H and sub groups like A1, B1 and C1. Buff Ware and Buff Ware with Red Slip again falls in the category of a very fine fabric with very fine to fine sand as tempering material. The major textural groups falls in this category are group B and C.

5.3 Ethno- Archaeological Studies and the Morpho Metric Analysis

The ethnographic and morpho metric analysis were carried out at the traditional workshop around Bagasra village with an objective to understand or record the existing potting traditions and major raw material source areas of the region. It

was intended to generate a data base for understanding the social organization of production on archaeological samples. The following table (Table 5.3) shows the summary of the analysis. Here workshops have been documented with precision on the age and total experience of the potter, clay source and the nature of potting.

Table 5.3 Potting variations in Traditional Potters Workshops around Bagasara

Name of the workshop and Potter	Age and experience in years	Clay Source	Nature of Potting	Variation in Percentage
Bavpur (W1) Amarshi Bhai and Godawari Ben	80 (70) 55 (45)	Village lake Forest around	Year round production	5.56
Bavpur (D)	Potter only (researcher as assistant)	Same Source	Under direction	3.66
Jajasar (W2) Bikhi Bhai and Godi Ben Kirite Bhai Giridar Bhai	55 (50) 50 (40) 32 (25) 30 (23)	Village Lake, Dariya (sea shore) forest around.	Year round production	3.68
Vavania (W3) Mavji Bhai Leela Ben	65 (60) 50(40)	Village Lake, Dariya(sea shore) forest around.	Year round production	6.22
Mota Bela (W4) LaljiBhai Devkar Amrita Ben	60 (50) 52(45)	Village Lake, Dariya(sea shore) forest around.	Seasonal (3 to 4 months)	5.45
Nana Bela(5) Babu Bhai Rema Ben	50 (40) 45 (38)	Village Lake, Dariya (sea shore) forest around.	Seasonal (3 to 4 months)	5.71

The study resulted many interesting results and also put a platform for discussion regarding some assumptions like specialist, specialization, raw material procurement and processing, tools and treatment of the vessels, marketing and the notion of standardization etc.

The major findings of the ethnographic study are:-

19. The analysis shows that W4 and W5 (considering as part time specialists) produces less variable/more standard products than W3 (full time specialist) and W1.
20. The normal production by the specialist at W1 and production under exclusive instruction/demand (W1D) brings a difference in the quality and in the variation. It estimates a strong direction or constant demand from the part of consumers/elite can enhance the reduction in variation or standardization.
21. The division of labour also generates uniformity and a desired quality to the product. The micro specialization at Jajasar (W2), where each stage of potting is done by different members of the family brings enormous degree of specialization compared to the single specialists who controls all the stages of production at other workshops.
22. The use of advanced tools (e.g., electric wheel at Jajasar) and separate provisions for different stages of production (square and round champers for clay paste preparation at Jajasar and Mota Bela), separate kilns for different size and shapes (Bavpur and Jajasar) shows the different levels of specialization and the degree of standardization reflected on the products.
23. The skill and the adaptation of the potter to the changing environment and demand also facilitate the quality of the product and the notion of standardization.
24. The study also resulted in understanding the geology of the region.

The study put up a number of interesting findings which may facilitate the existing idea of specialization. The study compels us to rethink on certain issues like, how one should differentiate a specialist from a non specialist? Does it the time one spend on potting? The quantity produced by the potter? Skill of the potter to re-produce vessels with less variation? Is it really the division of labour in to part time and full time specialists really answer any of the questions convincingly related with production and distribution in archaeological context?

5.3.1 Part Time Versus Full Time Specialization

It is argued that a specialization can be understood from the quality/ standardness exhibit by a product. Many a times we tried to ignore the difference in quality by simply putting part- time full time specialization. But it is very essential to think that whether these kind of a demarcation really exist or not if so or not then what exactly remains there? The idea of part time full time specialization is mainly hanging in the time one spend on production and the income/subsistence one generate from the occupation. It is found that the part timers entertain production when the condition is favorable and rest of the time they depart for other means of occupation, rarely try to cope with the changing scenario, because he is not ready or cannot take risk. He is ready to leave the technology and production instead of working out a strategy to fight back. But in the case of a full time specialist he stays back in production irrespective of the condition. He keeps on introducing/implementing new ideas and tricks to keep the production lively. So part time specialists are skilled labours who can produce quality products in favorable conditions. But a specialist is sometimes even ready to compromise the quality to keep the production going. A true specialist is someone who stays with the production whatever may be the circumstances and try to cope with the environmental and cultural stress. Thus the idea of part time/full time specialization doesn't sound well in the above context. It is preferable to call one as a skilled worker looking for some means of subsistence and the repeated

production brings the uniformity in the products they produce and the other one as a specialist, who is ready to compromise everything in order to go with the needs and social responsibility.

5.3.2 The Notion of Standerdisation

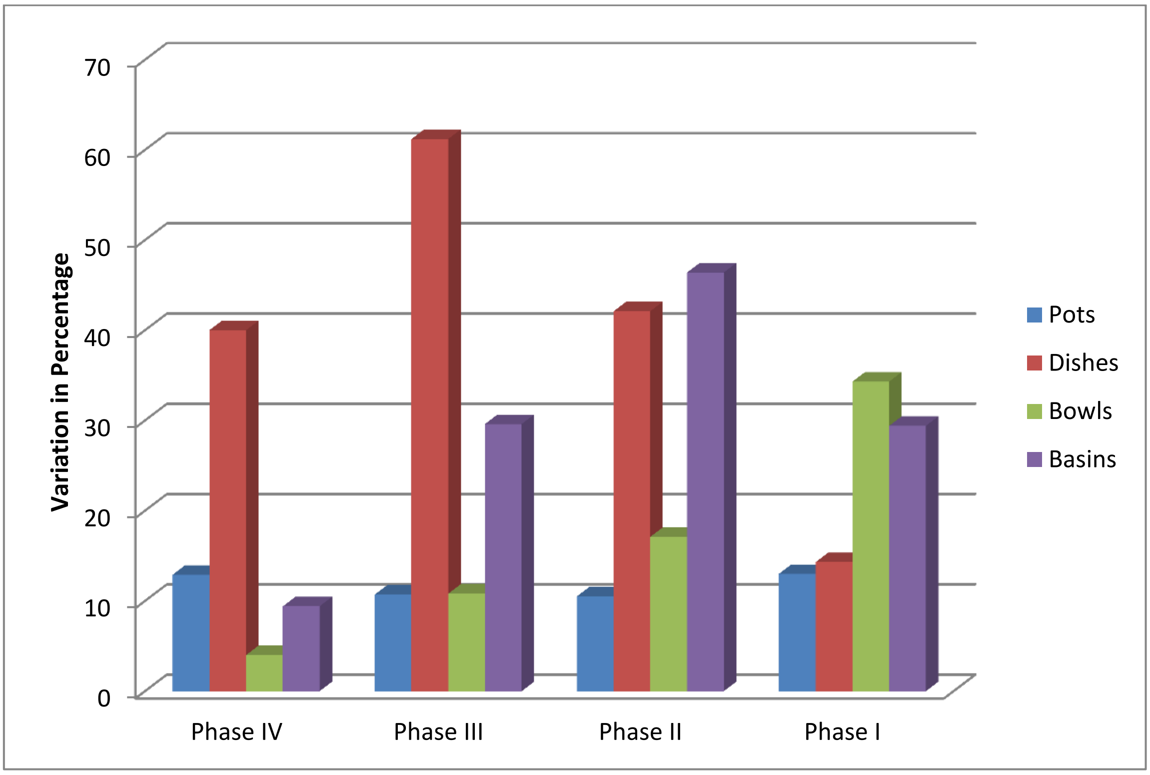
When one deals with the attributes of specialization one can see a combination of real skill of the potter and his understanding of the surrounding or his agreement with nature. All the stages of production badly require that agreement. The ethnographic study shows that during winter season the production is at its peak, almost all potters engage in potting. But in summer only two workshops are engaged in production and rest of the workshops stops production for a short period. But in case of Bavpur the potter goes to the village tank where some water is available throughout the year and collects the clay in the evening and do the potting early in the morning and thus keep the moisture of the clay hence he is able to produce the products with desired quality like in the winter season. In case of Jajasar, the potter travels nearly 10 km every day and collets the clay from a deep forest area. Since the clay is too fine and only suitable for pots, he produces only water vessels during summer and maintains a standard quality by putting lot of efforts on all stages of manufacturing.

The psychology of the potter also counts when it comes with the aesthetic sense (colorant applied and designs drawn) quality of the products, maintaining shape (defining different rims) and use of different tools for perfection. All these features together brings the so called standardization in a product and thus by reflect the idea of how much the craft was specialized or vice-versa.

When it comes to the archaeological context it becomes extremely difficult to address or make out the degree of specialization. Because in archaeological context one seldom get the evidence of manufacture or mass production. What he have is the finished products, the ceramic vessels that too in dilapidated condition. Here

an attempt has been made on the archaeological ceramics from Bagasra to see the variation after considering the visible and recordable parameters like diameter and thickness.

Figure 5.11 Phase wise distribution of Variations in Archaeological Samples from Bagasra



The morpho metric analysis carried out on the archaeological samples revealed that;

1. Among the vessels pots are the most standardized or least variant shape at Bagasra
2. Phase IV is the least variant phase for ceramic vessels.
3. Bowls shows a considerable increase in their standardness from phase I to IV. At phase I, it is the least standardized shape. But when it reaches at phase IV, it evolves in to the most standardized shape.
4. Dishes at Bagasra are in an inverse relation to the bowls. It is the most standard vessel form in phase I and least standard at Phase IV.

5. A fluctuation in the uniformity of the major shapes can be observed at different phases

The data (Figure 5.11) shows that phase II and III have lot of variation compared to the other phases. It can be interpreted as the maximum number of shapes and maximum variants of the same vessels were produced during these periods by different workshops. The potters engaged in the production may be slightly larger number compared to the other phases because of the local demand. This argument is supplemented by the structural and artifact distribution of all these phases. The ethnographical studies also point out that the percentage of variation can be fluctuated. It cannot be heavily depend out on the inverse relation theory of specialization and degree of standardization. The variation or standardization reflected in a product is highly subjected to the context of production, the general technology and raw material and demand available for a product rather than the time spend by the potter.

Thus, as a whole the different analysis at Bagasra produces a fairly good idea regarding the nature, technology and potentiality of the site. The study reveals that

1. Phase II is the most organized phase as far as structural features and associated antiquities are concerned.
2. The site produced genuine evidence of craft production like shell bangles, beads and blades, copper activity and faience working which can be extracted from the huge amound of manufacturing waste showing different stages of production along with the finished goods.
3. All the activities are in full swing during phase II and till the beginning of Phase III and is located inside the fortification.
4. Phase II and III shows evidence of contacts with other sites which is evident from the Rohri chert blade, etched and long carnelian and lapis lazuli beads and the some deluxe wares like Black and Red Ware and the Black Slipped jars.

5. The site was a centre of shell bangle manufacturing after Nageshwar on the Ran on Kachchh and got deserted during phase III.
6. The production of local chert blades and beads made out of locally available chert clearly indicate the knowledge of the local raw material source and local trade network
7. The ceramics were produced locally by using the locally available clay and continued the production in full swing even after Phase III.
8. The analysis shows that the clays were collected at least from three major sources and is matching with the local geology.
9. Same clay and different methods has been used for making different Wares and shapes at Bagasra.
10. Among the shapes pots are the most standard shape which is followed by bowls and basins.
11. Phase IV is the most standard phase as far as ceramics is concerned.

The ceramic analysis in association with other artifacts and activity shows that Bagasra is a small craft producing centre which had a strong external and internal trade contacts. The fall of the Harappans at the core area might have influenced the fall of the Harappans at Bagasra. The site remained active in Phase IV which is equalant to the late phase of the Harappans. No evidence of any craft activity has been recorded during the last phase of occupation. It is very much possible that during this phase the necessary crafts were produced outside the main mound and was carried to the site. This is the case with the ceramics as well. The quality and the increased quantity show that the ceramic production during phase IV was in full swing even though; we never recovered any evidence directly indicating the production at the site.

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Chapter 6 : Conclusion

The detailed studies on archaeological ceramics enriched our understanding on Harappan culture. The culture has been investigated through ceramics by using both physical and scientific methods. With the changing scenario instead of arranging the artifacts according to time and space, the studies started concentrating more on the man behind artifact and his association with the environment and society and became more problem oriented. Ceramics has been used for building models and to bridge the gap between the bigger ideas like Urbanization and the static archaeological records. The present study is an investigation of specialization which is one of the ten criterias proposed by Childe in understanding the process of Urbanization. To the best of my knowledge none of the studies has addressed the Indus Urbanization from a ceramic point of view.

The study is also significant as it approaches the ceramics from a typo technological point of view (combination of physical as well as scientific methods).

The study identified different ceramic traditions at Bagasra. It has been classified into different wares where both external and internal features have been considered. All the visible parameters has been used for a categorization and succeeded in identifying the four major wares. They are the RW, RWBS, BWe and BWRS. Thus, a comparison was possible through time and space where structural as well as other antiquities has been considered which helped in understanding the ceramic traditions at Bagasra in a holistic way. The division of ceramics into inside and outside fortification enhanced our idea on reflection of different activity area through ceramics. The comparison of the pottery drawings with the major published reports of the chalcolithic period clearly place Bagasra in the Mature Harappan map of Gujarat.

The phase wise distribution of ceramics clearly suggests preference of vessels one over the other by the inhabitants through time and space. Irrespective of the period, pots remain the most dominant, well made and popular shape which is available in different size, texture and in compositions. The other major shapes present are the bowls, basins and dishes. The phase wise distribution of the major shapes has been discussed in detail in chapter 4. Shapes like dish on stand, goblet and lid are present and their percentage suggests that these shapes might have a less function to do at the site or they would have a restricted/limited use. As far as the technique is concerned, they are mostly wheel made, handmade and partly wheel made (slow wheel turned) and partly handmade. Evidences of luting suggest that vessels were also made in parts and then luted. Mostly very fine to medium ware are wheel turned and the coarser ones are of handmade. The technique of luting can be seen on the Medium Coarse Red Wares which are sometimes identified as the Gritty Red Ware (Ajitprasad 1994)

As far as the provenance and technique of manufacturing of ceramics at Bagasra is concerned, analysis suggests a multiple geological source which is of sedimentary and alluvial in nature. The minerals suit present on the samples at Bagasra suggest a broader geological domain of central Gujarat alluvium as the provenance. The clay has been collected mostly from four areas which match with the local geology. Different ceramic traditions can be seen at Bagasra but altogether the clay remains the same. From the textural analysis it is clear that, differences in the clay processing resulted in different wares at Bagasra with varying textures. They preferred different methods of clay processing like levigation, elutriation etc. which brought the differences in the fabric. There are four major textural groups at Bagasra they are 1. Silt tempered (fabric group C, C1, F and J), 2. Silt to fine sand tempered (A1, D and H), 3. Fine to medium sand tempered (A, E and B), and 4. Medium to coarse sand tempered (B, G and I).

As far as the Sorath and Sindhi division is concerned very less differences can be seen in ceramics from the typological and decorative sides. The study of Possehl and Rawal (1989) even though proposed a new terminology to describe the variations that they noticed on the Mature Phase, ceramics at Rojdi has not been demarcated clearly. Except the presence /absence of few shapes and some paintings, rest of the fabric is very much similar to the Harappans of the core area. This is the case with technology as well.

No characteristic change can be seen texturally between the Sorath and Sindhi Harappans but local and regional elements can be traced through a thin section analysis. Here Medium Coarse Red Ware matching with the Gritty Red Ware classification of Anarta tradition has shown a different texture (fabric group E) with coarse or large grains, suggest a different method of clay processing even though the source remains the same. There are at least three different techniques involved in the production of RW at Bagasra they are 1.very fine to fine fabric with silt to fine sand as tempering material which is represented by fabric groups

like F, J , D and I. 2. Medium fabric with fine to medium sand as tempering material represented by fabric group E. 3. Coarse fabric with medium to coarse sand as tempering material represented by fabric group A. In all these three cases the clay is ferruginous mixed with calcareous inclusions and the minerals remains the same. The major differences occurred in the percentage of non plastic inclusions, size and shape of the minerals, sorting and in the orientation of the minerals. In Fabric group F, J, D and I the frequency of non plastic inclusions ranges from 10 to 20% and the size of the Largest grain falls between 50 to 150 microns, and are angular to sub angular in shape. They are well to moderately sorted. The grain size distribution is unimodel and shows a parallel orientation towards the wall. In case of fabric group A, the frequency ranges from 20 to 60% and the size of the largest grain of nonplastic inclusions ranges from 150 to 300 microns, angular to sub angular in shape and poorly sorted. It also contains some argillaceous inclusions. The grain size distribution is bimodal and shows no orientation. While in case of fabric group E the frequency of the non plastic inclusions ranges from 10 to 30% and the largest grain fall into a size of 120 to 300 microns and are mostly angular in shape which suggest the addition by the hand of the potter. They are ill to moderately sorted and bi modal in character and the minerals does not show any orientation. Thus the presence of crushed quartz and feldspar suggest the addition on non plastic inclusions by the potter and the fabric is not sorted properly which suggest a different clay paste preparation technique. To associate this sort of local technological changes with a cultural tradition need more investigation of similar nature.

Specialization is a concept which seldom leaves any direct traces in archaeological excavations. It is the final product that we come across in archaeological contexts like a pot or a dish on stand which completely misses the process involved in the manufacture. It is also very difficult to trace the stages of manufacture in absence of a kiln or any such indicators of production. This is the case with ceramics at

Bagasra as well. There is no direct evidence pointing towards the production being carried out at the site. Thus, the present study is so important and is first in its kind on Indian ceramics where an attempt has been made to evaluate or estimate the degree of specialization reflected on ceramics. Craft specialization is a major concept which needs to be addressed holistically and the present study touches only one dimension of it.

The basic concept behind the study is that reduction in variability of a product brings specialization (Rice 1987) which is reflected in more similar or unique products. A standard product (less variant) means a specialized craftsman and a much organized society which is an indicator of an urban setup. Understanding different degree of standardization of pottery enables one to realize the various aspects of craft specialization. According to Rice a high degree of standardization means more full time specialists making pottery, especially in an urban society, while the situation in village settlements would be different. Costin (1999) proposes standardization as a characteristic of production and its inference can be used to reconstruct organizing principles such as the specialization of labour, the constitution of production units, and laws of control within the production system. Here the concept is investigated by means of typological, technological, morpho-metric with the support of an ethnographic study. The ethnographic studies carried out around Bagasra village produced very interesting results. (Table 5.3). The morpho metric analysis carried out at traditional potters workshops opened new vistas on ceramic specialization studies. Here, attempts has been made to plot the variations in potting using the statistical method of Coefficient of Deviation and super imposed this method on archaeological samples. Typological studies showed that there existed a specialization within the ceramic production which is evident from the quality, the variations and surface treatments of the ceramics available in each wares present at Bagasra. As per the function and aesthetic sense of the potter they produced different wares and shapes with

different surface treatments from the same clay. The thin section studies also show the specialization involved in the production of clay paste which is quite evident from the fabric and textural groups. Even though, the clay has been exploited from more or less from the same source the variations and differences in quality has been achieved through the specialization possessed by the potter.

The morpho metric data suggest the variations in different phases at Bagasra. (Figure 5.11). Here, phase IV (Post Urban) has been shown as less variant phase than Phase II (Urban). In comparison to other phases, Phase IV has produced less variant products and theoretically becoming the most organized and more specialized phase at Bagasra. However, before one arrives at an assessment one has to see the supplementary side of the variation. The ethnographic parallel around the site says that even a part time specialist can also make more standard product than a full time specialist. Here, during phase IV the percentage of the ceramics increased and the quality retained. But at the same time variations in shapes and wares decreased. It can be assumed that repeated production of the similar ceramics decreased the variability in size, shape, texture etc. because it was the one and only industry prevalent at the site during phase IV and was inseparable to any sort of society.

A comparison of the result of the characterization studies of Bagasra with other major studied site (Nagwada, Padri, Nageshwar, Vagad, Ratanputa) has also been carried out to appreciate the degree of specialization involved in the production of ceramics during the Harappan period.

The characterization study of Padri ceramics (Bhagat 2001) revealed that the different wares (RW and BW of both fine and coarse ware variety) has been produced locally and suggest a Deccan trap terrain as its provenance. The study suggest that all the three major fabric groups and five sub groups identified at Padri are the same and Basaltic in nature. The difference between the coarse and

fine wares lies in the differing amount of quartz and basalt. The major minerals present in the suite include quartz, basalt, feldspar, augite, altered feldspar, calcite, crypto crystalline calcite, iron oxide, mica, argillaceous inclusions and bioclasts. The mineralogical data suggest that there was a change in the source of raw material from phase A to phase C, while altogether falls in the general domain of Deccan trap. The textural data shows that there existed at least three major techniques of clay paste preparation and which is reflected by the three fabric group at Padri. The difference in the fabric groups are simply the result of the modification by the potter and the differences in wares are just because of the change in firing technique /temperature.

An attempt has been made to compare the present data with the existing data from Gujarat. The thin-section analysis carried out on Nagwada ceramics (Shah 2001) revealed ten fabric groups. The study suggested a metamorphic and sedimentary source for the provenance of the clay. However, her samples represented at least three different modes of paste preparation producing morphologically similar wares with different textures. This suggested that at Nagwada there existed distinct modes of clay paste preparation for different type of vessels. Here, the clay remains the same but the vessels vary in their quality. This suggests that quality of pottery at Nagwada was decided by the variation in clay paste preparation techniques. At Bagasara also a more or less similar pattern was observed.

Krishnan (1986) has attempted to reconstruct the various stages involved in the manufacturing of pottery of the Harappans in Gujarat. With the purpose, potteries from excavated sites like Vagad, Nageshwar and Ratanpura have been analyzed using ceramic thin section studies and chemical analysis. As far as Nageshwar is concerned Quartz is the common and dominant mineral. Other major minerals present in the suite include; feldspar, augite, biotite, mica and crypto crystalline silica. The composition analysis of the non plastic inclusions from Nageshwar showed mixed nature of source material. The mineralogy of Ratanpura samples

showed the dominance of quartz and mica. Augite, plagiclase feldspar, and crypto crystalline silica are the other common non plastic inclusions. Here, the composition analysis showed single source for the samples and suggest alluvial deposit of Ratanpura area as the probable source. The analysis on Vagad samples revealed that the sherds falls in to three major groups and represents three distinct areas. The thin section analysis carried out at the site like Nageshwar, Vagad and Ratanpura revealed that the Harappan potters exploited locally available clay deposit for manufacturing pottery. The analysis showed that the size of the non plastic inclusions are small at Vagad (0.018mm), Nageshwar (0.02mm), Ratanpura (0.12mm) and are not added deliberately.

The study suggested repeated elutriation as the method of clay paste preparation by the Harappans. The study also suggests the usage of locally available clay. The study also noticed the deterioration of the quality of the clay paste towards the later phase of the Harappan culture in Gujarat. It has been explained as the reduced efforts from the part of the potter in elutriating the clay or the number of elutriation process decreased in the later phase of the Harappan Culture in Gujarat which resulted in poorer fabric.

At all these sites, during the last phase the pottery is getting coarse as it is made using less elutriated clay. But at Bagasra the fine wares continued its quality through the process of repeated elutriation. It shows that, the economy at the site did not collapse altogether. Instead of a fall, there is a shift in the means of economy from craft based to other means. The Harappans and Non Harappans managed to achieve the clay paste quality through employing different techniques. In case of Harappans, it was elutriation that led to the removal of coarse grains while in case of Non-Harappans it was addition of temper. Such variation in clay paste preparation is one of the major finds. In both the cases they knew the properties of the raw material very well.

Thus, the study incorporated different methods to estimate or understand the process of specialization in ceramics. Normal studies concentrate on either physical methods or scientific methods and often ethnographic studies to study the ceramics and support their view points. But, composite analysis methods were seldom used to explain the archaeological artifacts. They treat each method as different compartments and hardly speak about the potentiality of the method in delivering answers to the wide range of questions asked. Choosing the right method for a study is so important that one will be in a position to answer lot of questions he otherwise finds unanswerable. Here, a combination of physical (typology) scientific (thin section analysis), ethno archaeology and statistical (morpho-metric) analysis has been considered to address the intangibles like the degree of craft specialization and organization of production. This method can be expanded to other sites after considering the proper context. Thus, the study produces a model which can be worked out in dealing with archaeological ceramics.

Archaeological studies proved to be convincing in explaining the cultural process. More problem oriented research brought to light intricate details, new and fresh arguments on the general understanding of archaeological culture. The unpredictable nature of human beings and his story of progress/change are understandable as different in time to time and from place to place. What exactly remains constant is his agreement with the nature and his ability to carry forward his understanding and capacity to adapt with the nature. That is why culture can be termed as a learned behavior being part of a society.

Thus, on the whole it can be stated that understanding the degree of specialization can be successfully used in the understanding of the organization of production and distribution. Specialisation exists in almost all forms of society irrespective of time and space. But the reflection and the degree of specialization may vary as per the nature and function of the site. So, a society and its organization can be

estimated by understanding different degrees of specialization. Reduction in product variability can be used as an indicator of the degree of specialization but should be cautious about the context and the factors of production. The skill of the potter, his agreement with the nature and society, availability/nearness to raw material, the technique of manufacturing and constant demand may lead to the perfection of a final product. No one can be termed as a part time or full time specialist. What exists is, only the skill of the craftman. As a result of his constant contact with his society he will be working towards catering to the needs of the society rather than making products of his own within the framework of his production techniques. No one can claim a uniformity or reduction in variability, whether it is intentional or accidental. But it needs to be noted that the uniformity or class of a product does not make much difference if they failed in delivering its function. The absence of uniform product does not mean that the society lack specialization and its urban attributes. Standard product and specialization will always be there until the products deliver the function attached to it.

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Appendix

Appandix 1: Key for Data Sheet.

1 Sample Number												
2 Normal Ware	2.1 RW	2.2 RWBS	2.3 BW	2.4 BWRS	2.5 MRW	2.6 Bichrome	2.7 BRW	2.8 CSW	2.9 GW	2.10 Incised RW	2.11 GRW	
3 layer												
4 Re arranged Ware	4.1 RW	4.2 RWBS	4.3 BW	4.4 BWRS	4.5 BRW							
5 Shape	5.1 Pot/jar	5.2 Dish	5.3 Basin	5.4 Bowl	5.5 Dish on Stand	5.6 Goblet	5.7 Beaker	5.8 Bottle	5.9 Lid	5.10 Misllen eous	5.11 Lamp	5.12 Perforated pot
6 Form	6.1 Rim	6.2 Base										
7 Manufacture	7.1 WH	7.2 HM	7.3 HM&WM									
8 Rim Dia. (mm)												
9 Base Dia. (mm)												

10 Rim Thickness (mm)												
11 Base Thickness (mm)												
12 Wall Thickness (mm)												
13 Lip Thickness (mm)												
14 Brim Thickness (mm)												
15 External Texture	15.1 Very Fine	15.2 Fine	15.3 Medium	15.4 Medium Coarse	15.5 Coarse							
16 Feel	16.1 Harsh	16.2 Rough	16.3 Smooth	16.4 Soapy								
17 Luster	17.1 High	17.2 Medium	17.3 Dull	17.4 Nill								
18 External body color	18.1 10R6/8	18.2 10YR6/3	18.3 10YR7/2	18.4 10YR8/4	18.5 2.5YR6/6	18.6 5Y8/2	18.7 5Y8/4	18.8 5YR7/4	18.9 5YR7/6	18.10 5YR8/4	18.11 7.5YR 8/6	18.12 7.5YR 8/6

19 External Slip Color	19.1 10R4/4	19.2 10R3/1	19.3 10R3/4	19.4 10R4/1	19.5 10R4/2	19.6 10R4/ 3	19.7 10R4/ 4	19.8 10R4/ 6	19.9 10R4/ 8	19.11 10R5/3	19.12 10R5/ 4	19.13 10R5/ 6
	19.14 10R5/8	19.15 10R6/3	19.16 10R6/4	19.17 10R6/6	19.18 10R6/8	19.19 10R8/ 6	19.21 10YR 4/1	19.22 10YR 4/2	19.23 10YR5 /1	19.24 10YR5/ 2	19.25 10YR5 /3	19.26 10YR6 /2
	19.27 10YR6/ 3	19.28 10YR7/3	19.29 10YR7/4	19.31 10YR7/ 6	19.32 10YR8/ 2	19.33 10YR8 /3	19.34 10YR 8/4	19.35 10YR 8/6	19.36 2.3YR 6/3	19.37 2.5R6/6	19.38 2.5Y6/ 2	19.39 2.5Y6/ 4
	19.41 2.5Y6/ 6	19.42 2.5Y7/2	19.43 2.5Y7/2	19.44 2.5Y8/2	19.45 2.5Y8/4	19.46 2.5Y8/ 6	19.47 2.5Y R2/0	19.48 2.5Y R3/4	19.49 2.5YR 4/6	19.51 2.5YR5 /4	19.52 2.5Yr6 /2	19.53 5YR7/ 6
	19.54 2.5YR8 /4	19.55 5R3/1	19.56 5R4/3	19.57 5R5/6	19.58 5R6/2	19.59 5Y6/3	19.61 5Y8/ 6	19.62 5YR8 /6	19.63 7.5YR 4/0	19.64 7.5YR8 /6		
20 Internal body Color	20.1 10R6/8	20.2 10YR8/2	20.3 2.5YR3/0	20.4 5YR7/6	20.5 5YR8/6	20.6 7.5YR 8/6						
21 Internal Slip Color	21.1 10R6/6	21.2 10R3/1	21.3 10R4/3	21.4 10R5/8	21.5 10R6/8	21.6 10YR5 /2	21.7 10YR 8/2	21.8 2.5Y8 /4	21.9 2.yr5/ 8	21.11 5R6/6	21.12 5Y8/4	21.13 5YR7/ 6
	21.14 7.5R6/6	21.15 7.5YR8/6										

22 Color of core	22.1 10YR8/4	22.2 10R2.5/1	22.3 10R4/3	22.4 10R6/6	22.5 10YR8/6	22.6 2.5Y8/2	22.7 2.5YR6/8	22.8 5R7/4	22.9 5Y8/4	22.11 5YR8/2	22.12 7.5R8/6	22.13 7.5YR 8/8
23 Treatment Inner Side	23.1 None	23.2 Self Slip	23.3 True Slip	23.4 Wash	23.5 Wet Smoothened							
24 Treatment Outer Side	24.1 None	24.2 Self Slip	24.3 True Slip	24.4 Wash	24.5 Wet Smoothened							
25 Painting	25.1 Geometric design	25.2 Naturalistic Design										
26 Color of painting	26.1 Black	26.2 Red	26.3 Chocolate	26.4 Gray								
27 Background of Painting	27.1 Buff	27.2 Chocolate	27.3 Gray	27.4 Red	27.5 Black							
28 Description of the Rim												

Appendix 2: Er13 Work Sheet

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2.1	17	4.1	5.3	6.1	7.1	36		3.5		1.3	1		15.2	16.3	17.4	18.1	19.63	20.4	21.14	22.11	23.5	24.5				Everted round rim
2	2.1	17	4.1	5.1	6.2	7.1	7	6			6.58			15.2	16.3	17.4	18.12	19.5	20.6		22.11	23.5	24.3				Non Contiguous, discoid
3	2.1	17	4.1	5.4	6.1	7.1	12		6.4		7.6			15.1				19.26		21.13	22.5	23.5	24.5				Convex sided bowl
4	2.1	17	4.1	5.2	6.2	7.1		1			8.2			15.1			18.12	19.11	20.6		22.2	23.3	24.5				externallyprojected
5	2.1	17	4.1	5.1	6.1	7.1	6		3.76		4.37			15.2	16.3	17.4		19.5	20.4		22.7	23.5	24.5				Everted flaring rim
6	2.1	17	4.1	5.1	6.1	7.1			7.57				13.9	15.2	16.3	17.3	18.1	19.5	20.4	21.5	22.11	23.5	24.5				Everted round rim
7	2.1	17	4.1	5.1	6.2	7.1		10		6.9	4.62			15.2	16.3	17.4	18.1		20.4		22.11	23.5	24.5				Contiguous flat base
8	2.11	17	4.1	5.1	6.1	7.3	16		9.28		10.82			15.4	16.2	17.4	18.1			21.13	22.13	23.5	24.5				everted,
10	2.1	17	4.1	5.5	6.2	7.1		28		7.3	8.92			15.2	16.3	17.3	18.1	19.5	20.2		22.11	23.5	24.3	25.1	26.1	27.5	High pdestelled base
11	2.2	17	4.2	5.1	6.1	7.1	14		9.18				18.7	15.2	16.3	17.3	18.6		20.4		22.9	23.5	24.2	25.1	26.4	27.1	beaked rim
12	2.3	17	4.4	5.5	6.2	7.1				7.3	9.27			15.2	16.3	17.3	18.6		20.4		22.9	23.3	24.3				High pedestelled
13	2.1	17	4.1	5.1	6.1	7.1	17		10.8					15.2	16.3	17.4	18.6			21.5	22.13	23.5	24.2				Simple everted rim
14	2.1	17	4.1	5.1	6.1	7.1	9						26.3	15.4	16.2	17.4	18.5			21.9	22.11	23.5	24.5				flaring rim, sandy
15	2.2	17	4.2	5.3	6.1	7.1	32		8.7				24	15.2	16.3	17.3	18.2	19.52	20.2	21.5	22.11	23.5	24.3	25.1	26.3	27.1	internally beaked,
17	2.1	17	4.1	5.1	6.2	7.1	24		819		6.55			15.1			18.6		20.4		22.11	23.5	24.5				triangular rim
18	2.1	17	4.1	5.1	6.2	7.1		14		9.2	5.91			15.3	16.2	17.4	18.1		20.4		22.11	23.5	24.5				Contiguous flat base
19	2.1	17	4.1	5.1	6.1	7.1			15.9		11.92		40.3	15.2	16.3	17.4		19.62	20.4		22.11	23.5	24.3	25.1	26.2	27.1	wide beaked rim
20	2.2	17	4.2	5.1	6.1	7.1	15		7.85					15.2	16.3	17.2		19.28	20.4		22.11	23.5	24.3	25.1	26.2	27.2	flaring out rim
21	2.2	17	4.2	5.1	6.2	7.1		8		6.9	10.01			15.2	16.3	17.4	18.2		20.4		22.6	23.5	24.5				Non Contiguous,
22	2.1	17	4.1	5.1	6.2	7.1		12		8.9	6.93			15.2	16.3	17.4	18.1		20.4		22.11	23.5	24.5				Contiguous concave
23	2.1	17	4.1	5.1	6.2	7.1		8		5.4	6.16			15.2	16.3	17.4	18.6		20.4		22.6	23.5	24.5	25.1	26.3	27.1	Non Contiguous,
24	2.1	17	4.1	5.1	6.1	7.1	17		8.34				13.1	15.2	16.3	17.4	18.1	19.63	20.4		22.11	23.3	24.5	25.1	26.1		beaded rim
25	2.11	17	4.1	5.1	6.1	7.1	16		12.6				24.1	15.4	16.2	17.4	18.1		20.4		22.7	23.5	24.5				beaded rim
26	2.1	17	4.1	5.1	6.1	7.3	16		9.45		4.97	7.52		15.4	16.2	17.4	18.1		20.4		22.6	23.5	24.5				externaly projected ,

27	2.1 1	17	4.1	5.1	6.1	7.1	16		10.4		8.88	8.48		15.4	16.2	17.4	18.1		20.2		22.7	23.5	24.5				externaly projected ,
28	2.1	17	4.1	5.1	6.1	7.1	16		7.5		7.48	5.09		15.3	16.2	17.4	18.5		20.4		22.7	23.2	24.2				externaly projected ,
29	2.1	17	4.1	5.1	6.1	7.1	17		10.8			8.2	22.2	15.4	16.2	17.4	18.1		20.1		22.11	23.5	24.5				externaly projected
30	2.1	16	4.1	5.5	6.2	7.1		30		8.9	12.5			15.2	16.3	17.4	18.1		20.6		22.11	23.1	24.1				low pedestelled base
31	2.1 1	16	4.1	5.1	6.1	7.3	14		8.52		7.33	6.88	24.9	15.5	16.2	17.4		19.64	20.4		22.13	23.2	24.2				beaded
32	2.1 1	16	4.1	5.1	6.1	7.1	14		8.81				21.4	15.5	16.2	17.4		19.63		21.15	22.7	23.5	24.5				externaly projected
33	2.1	16	4.1	5.3	6.1	7.1	16		9.41		10.52	5.93	23.5	15.2	16.3	17.4		19.62		21.12	22.13	23.4	24.3				externally projected rim
34	2.2	16	4.2	5.2	6.1	7.1	21		9.26			5.93		15.1	16.3	17.4		19.54		21.8	22.6	23.2	24.2				externally projected
35	2.3	16	4.3	5.1	6.1	7.1	17							15.2	16.3	17.4		19.54	20.3	21.8		23.5	24.5				everted
36	2.1	16	4.1	5.1	6.2	7.1		8		10	11.2			15.1	16.3	17.4	18.5	19.28	20.6		22.13		24.3				Non Contiguous,
37	2.1	16	4.1	5.3	6.1	7.1		21		10		8.14		15.2	16.3	17.4	18.1	19.54	20.1	21.8	22.2	23.4	24.4				externally projected
38	2.1	16	4.1	5.1	6.1	7.1	15		11.9			8.11	23.3	15.5	16.2	17.4		19.64		21.15	22.13	23.2	24.2				externally projected
39	2.1	16	4.1	5.1	6.1	7.1	10		6.48		4.37			15.3	16.2	17.4	18.12		20.6		22.13	23.5					everted flaring rim
40	2.1	16	4.1	5.1	6.1	7.1	14		9.03		8.08	7.92		15.5	16.1	17.4		19.5		21.5	22.11	23.5					flaring rim,gritty surface
41	2.1	15	4.1	5.1	6.2	7.1		8		7.3	11.19			15.2	16.3	17.4		19.5		21.15	22.2	23.2	24.3				Non Contiguous
42	2.1 1	15	4.1	5.2	6.1	7.1	18		9			6.07		15.2	16.3	17.4	18.12	19.5	20.6	21.5	22.13	23.3	24.3				externally projected
43	2.1	15	4.1	5.1	6.2	7.1		6		6.2	8.77			15.2	16.3	17.4	18.12	19.5		21.15	22.13	23.5	24.3				Non Contiguous
44	2.2	15	4.2	5.1	6.2	7.1		4		4	4.83			15.1	16.3	17.4		19.54		21.8	22.6	23.2	24.3	25.1	26.1	27.2	Non Contiguous
45	2.1 1	15	4.1	5.1	6.1	7.1	13		7.61		7.74	6.07	20.8	15.5	16.1	17.4		19.26		21.13	22.13	23.2	24.2				externaly projected
46	2.1	15	4.1	5.1	6.1	7.1	17		6.96			5.39	18.6	15.5	16.1	17.4		19.26		21.13	22.13	23.2	24.2				externaly projected
47	2.1	15	4.1	5.1	6.2	7.1		9		9.3	6.8			15.2	16.3	17.4	18.1	19.54	20.4		22.11	23.1	24.2				Non Contiguous,
48	2.3	15	4.3	5.5	6.2	7.1		35	12.7			14.9	25.2	15.1	16.3	17.4		19.54		21.8	22.6	23.2	24.2	25.1	26.3		High pedestelled base
49	2.1 1	15	4.1	5.1	6.1	7.1	16		8.86		8.52	7.68	21.9	15.5	16.1	17.4		19.63		21.6	22.13	23.2	24.2				externaly projected

50	2.2	15	4.2	5.3	6.1	7.1	23		7.56		11.96	5.04	24.9	15.1	16.3	17.4		19.54		21.8	22.6	23.2	24.2	25.1	26.3	27.1	bilateral,equal projection
51	2.11	15	4.1	5.1	6.1	7.1	14		3.32		7.19			15.5	16.1	17.4		19.5		21.5	22.13	23.2	24.2				faring out rim
52	2.2	15	4.2	5.1	6.1	7.1		5	8.95			6.02	21.2	15.1	16.3	17.4	18.5	19.62		21.8	22.6	23.1	24.2	25.1	26.3	27.1	Non Contiguous, discoid
53	2.1	15	4.1	5.1	6.1	7.1	10		5.86			5.98		15.1	16.3	17.3		19.5		21.13	22.6	23.3	24.3				externaly projected
54	2.11	15	4.1	5.1	6.1	7.1	14		5.86			4.23		15.5	16.1	17.4		19.26		21.15	22.13	23.2	24.2				externaly projected
55	2.1	15	4.1	5.1	6.2	7.1		5			9.26			15.3	16.2	17.4	18.12	19.5		21.15	22.13	23.1	24.3				noncontiguous discoid
56	2.1	15	4.1	5.5	6.2	7.1		16						15.2	16.2	17.4	18.1	19.5	20.4	21.5	22.5	23.2	24.2				low pedestelled base
57	2.1	15	4.1	5.3	6.1	7.1			10.6		10.87	7.6	21.7	15.2	16.3	17.4	18.1	19.5		21.5	22.11	23.1	24.3				Bilateral projected
58	2.1	15	4.1	5.1	6.1	7.1			11.4		8.98	6.52	20.1	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externaly projected
59	2.1	15	4.1	5.5	6.2	7.1		18		9.8		9.06		15.3	16.2	17.4	18.1	19.5	20.4		22.11	23.1	24.3				low pedestelled base
60	2.11	15	4.1	5.1	6.1	7.1	16		10.7		8.33	6.25	18.2	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externaly projected
61	2.1	14	4.1	5.1	6.2	7.1		11		7.8	10.28			15.1	16.3	17.4		19.26		21.13	22.11	23.1	24.2				Contiguous flat base
62	2.11	15	4.1	5.4	6.1	7.1	25		12.9		8.96		13.4	15.5	16.1	17.4	18.12	19.64	20.6	21.5	22.5	23.2	24.2	25.1	26.1	27.1	incurved rim
63	2.1	15	4.1	5.3	6.1	7.1	19		9.57		8.8	6.38	25.2	15.1	16.3	17.4	18.2	19.63		21.14	22.11	23.3	24.3				internally beaked rim
64	2.11	15	4.1	5.1	6.1	7.1	13		8.14			5,01	20.7	15.5	16.1	17.4		19.5		21.5	22.11	23.2	24.2				externally projected
65	2.1	15	4.1	5.2	6.1	7.1	20		8.25			3.69		15.1	16.3	17.3	18.1	19.5	20.4	21.5	22.5	23.3	24.3	25.1	26.1	27.4	externally projected
66	2.2	14	4.2	5.2	6.1	7.1	18		7.96	9	9.79	4.3	15.1	15.2	16.3	17.4	18.1	19.62		21.12	22.11	23.2	24.2				beaked rim
67	2.1	14	4.1	5.1	6.2	7.1		5		4.7	5.96			15.3	16.2	17.4	18.1	19.5	20.4		22.11	23.1	24.3				noncontiguous discoid
68	2.1	14	4.1	5.4	6.1	7.2	12		6.67		9.08	3.82		15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				incurved rim
69	2.1	14	4.1	5.5	6.2	7.1		22		8.3			6.88	15.1	16	17.2		19.5		21.13	22.11	23.5	24.2	25.1	26.1	27.4	High pedestelled base
70	2.1	14	4.1	5.1	6.2	7.1		9		7.6	8.09			15.3	16.2	17.4	18.1	19.62	20.4		22.11	23.1	24.2				contoguous flat
71	2.2	14	4.2	5.1	6.1	7.1	8						3.76	15.1	16.3	17.3		19.11		21.4	22.2	23.3	24.3				externally projected

72	2.3	14	4.3	5.1	6.1	7.1	21		11.9		8.92	9.29	25.7	15.3	16.2	17.4		19.62	20.4		22.9	23.2	24.2	25.1	26.3	27.1	short necked
73	2.1	14	4.1	5.1	6.2	7.1		8		7.5	7.48			15.1	16.2	17.4	18.12		20.6		22.13	23.2	24.2	25.1	26.2	27.4	Contiguous flat base
74	2.1	14	4.1	5.1	6.2	7.1		11		4.8	10.23			15.1	16.3	17.4	18.1	19.23	20.4	21.4	22.11	23.3	24.2				Contiguous flat base
75	2.1	13	4.1	5.1	6.2	7.1		7		6.8	7.88			15.1	16.3	17.4	18.1	19.26	20.4		22.11	23.1	24.2				noncontiguous discoid
76	2.7	14	4.1	5.1	6.1	7.1	7		3.44			3.61		15.1	16.3	17.4	18.1			21.13	22.11	23.2	24.3	25.1	26.2	27.1	externally projected
77	2.1	14	4.1	5.1	6.1	7.1	14		4.88			3.99		15.2	16.3	17.4		19.26		21.13	22.11	23.2	24.2	25.1	26.2	27.1	externally projected
78	2.1	14	4.1	5.1	6.1	7.3	15		8.27		8.87	6.33	16.8	15.5	16.1	17.4	18.1	19.23		21.5	22.11	23.2	24.2				externally projected
79	2.1	14	4.1	5.1	6.1	7.1	8		4.07		3.43	4.13		15.1	16.3	17.4	18.1	19.11		21.13	22.11	23.5	24.3				externally projected
80	2.1	14	4.1	5.1	6.1	7.1	7		4.45			3.89		15.1	16.3	17.4	18.12	19.64		21.15	22.13	23.3	24.3				externally projected
81	2.11	14	4.1	5.1	6.1	7.1	14		7.98		6.64	5.37	18.1	15.5	16.1	17.4		19.64		21.7	22.7	23.2	24.2				everted rim
82	2.1	13	4.1	5.2	6.2	7.1		13			11.17			15.2	16.4	17.2	18.1			21.3	22.11	23.3	24.5	25.1	26.2	27.4	Contiguous flat base
83	2.4	13	4.4	5.3	6.1	7.1	26		11		9.88	6.43	24.1	15.2	16.3	17.3	18.5	19.11	20.3	21.4	22.6	23.3	24.3				bilateralprojecting
84	2.11	13	4.1	5.1	6.1	7.1	14		9.65		5.87	5.11	20.4	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
85	2.11	13	4.1	5.1	6.1	7.1	14		9.01			8.43	29	15.5	16.1	17.4		19.26	20.4	21.13	22.6	23.2	24.2				externally projected
86	2.2	13	4.2	5.1	6.2	7.1		10		6.1	5.15			15.1	16.3	17.4		19.54		21.8	22.6	23.2	24.2	25.1	26.3	27.1	Contiguous flat base
87	2.11	13	4.1	5.1	6.1	7.1	17		10.1			7.69	23.3	15.3	16.2	17.4		19.28		21.13	22.11	23.2	24.2				externally projected
89	2.1	13	4.1	5.1	6.1	7.1	15		11.3			6.31	24.5	15.5	16.1	17.4		19.26		21.13	22.7	23.2	24.2				everted flaring,
90	2.2	12	4.2	5.1	6.2	7.1		6		5.6	7.84			15.2	16.2	17.4		19.62		21.12	22.13	23.2	24.3	25.1	26.3	27.1	Contiguous flat base
91	2.11	13	4.1	5.1	6.1	7.2	27		15.6		11.07	11	26.8	15.3	16.2	17.4		19.11	20.4	21.4	22.11	23.2	24.2				externally projected
92	2.2	13	4.2	5.3	6.1	7.1			8.69		8.69	5.79	21.5	15.3	16.2	17.4	18.1	19.5	20.4	21.5	22.11	23.2	24.2				externally projected
93	2.1	12	4.1	5.1	6.2	7.1		4		3.8	8.64			15.2	16.2	17.4		19.64		21.7	22.11	23.1	24.2				noncontiguous discoid
94	2.2	12	4.2	5.2	6.1	7.1	29		10.2		9.88	4.72	14.9	15.2	16.3	17.4	18.1	19.62	20.4	21.12	22.11	23.2	24.2				externally projected

95	2.11	12	4.1	5.1	6.1	7.1	15		10.2			8.93	21	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
96	2.2	12	4.2	5.3	6.1	7.1	38		11.3		11.82	8.18	26.8	15.1	16.3	17.4		19.26		21.5	22.5	23.3	24.3				externally projected
97	2.2	12	4.2	5.1	6.2	7.1		10		12	10.5			15.2	16.2	17.4		19.62		21.12	22.13	23.2	24.5				contoguous flat
98	2.1	12	4.1	5.1	6.1	7.1	10		5.31				4.67	15.1	16.3	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
99	2.11	12	4.1	5.1	6.1	7.1	16		11.4			6.48	28.6	15.5	16.1	17.4		19.26		21.13	22.13	23.2	24.2				externally projected
100	2.1	12	4.1	5.1	6.1	7.1	20		12.3			8.02	21.2	15.2	16.2	17.4	18.1	19.62	20.4	21.12	22.11	23.2	24.2				short beaked rimm
101	2.9	12	4.1	5.2	6.1	7.1	32	22	10.5	9.5		6.93		15.2	16.3	17.3	18.1	19.26		21.14	22.11	23.3	24.3				flaring out rim
102	2.1	12	4.1	5.1	6.1	7.1	11		4.42			4.01		15.1	16.3	17.3		19.5		21.13	22.11	23.2	24.3				flaring out rim
103	2.2	12	4.2	5.1	6.1	7.3	15		8.52		7.78	5.09	22.3	15.3	16.2	17.4		19.26		21.7	22.5	23.2	24.2				flaring out rim
104	2.2	12	4.2	5.5	6.2	7.1		24		6.7		5.59		15.1	16.3	17.4		19.63		21.7	22.5	23.5	24.2				high pedestelled raised edge
105	2.1	12	4.1	5.5	6.2	7.1		14		8.6		8.99		15.2	16.4	17.2	18.1	19.62	20.4	21.4	22.11	23.2	24.3	25.1	26.1	27.4	high pedestelled raised edge
106	2.1	12	4.1	5.1	6.1	7.1	15		9.93		8.95	8.91	21.5	15.5	16.2	17.4		19.5		21.5	22.11	23.2	24.2				extrnally projected flaring rim
107	2.8	12	4.1	5.2	6.1	7.1	30		11.9		9.73	9.08	24.6	15.1	16.3	17.4		19.2		21.7	22.5	23.3	24.2				Bilateral projecting,
108	2.1	12	4.1	5.1	6.1	7.1	16		9.62			9.19	17.2	15.5	16.1	17.4	18.1		20.5		22.11	23.1	24.2				externally projected
109	2.1	12	4.1	5.1	6.1	7.1	14	10		5.3		11.1	17.2	15.3	16.2	17.4	18.1	19.5	20.4	21.9	22.11	23.2	24.3				short beaked
110	2.1	12	4.1	5.1	6.1	7.1	14		10.4			10.4	21.7	15.5	16.1	17.4		19.64		21.15	22.13	23.2	24.2				extrnally projected flaring rim
111	2.1	12	4.1	5.1	6.2	7.1		4			5.42			15.3	16.2	17.4	18.12	19.5		21.15	22.13	23.2	24.3				Noncontiguous discoid
112	2.1	12	4.1	5.5	6.2	7.1					8.08			15.1	16.3	17.4		19.64		21.5	22.13	23.3	24.5				body portion
115	2.11	12	4.1	5.1	6.1	7.1	15		9.2			8.6	18.1	15.5	16.2	17.4		19.26		21.13	22.11	23.2	24.2				flaring out rim
116	2.1	12	4.1	5.1	6.1	7.1	15		8.12			7.9	21.3	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				flaring out rim
117	2.1	12	4.1	5.1	6.2	7.1		10		8.2	5.57			15.2	16.2	17.4		19.54		21.13	22.11	23.5	24.2	25.1	26.3	27.1	Contiguous flat base
118	2.1	12	4.1	5.1	6.2	7.1		12		8	10.97			15.2	16.2	17.4		19.54	20.4	21.13	22.11	23.2	24.2				Contiguous flat base
119	2.2	12	4.2	5.1	6.1	7.1	10		5.67		4.45	4.57	12.1	15.1	16.4	17.4		19.54		21.8	22.11	23.2	24.2	25.1	26.4	27.1	flaring out rim
120	2.2	12	4.2	5.1	6.2	7.1		8		3.7	11.31			15.1	16.3	17.4	18.1	19.54		21.8	22.11	23.5	24.2	25.1	26.3	27.1	Noncontiguous discoid base

121	2.1	12	4.1	5.1	6.2	7.1		6		9.4	8.86			15.2	16.2	17.4	18.5	19.28		21.13	22.2	23.1	24.3	25.1	26.3	27.1	flaring out rim
122	2.2	12	4.2	5.1	6.2	7.1		9		8.5	8.52			15.1	16.3	17.4		19.62		21.13	22.9	23.5	24.2				contiguous flat base
123	2.1	12	4.1	5.1	6.1	7.1	8		4.79				4.87	15.1	16.4	17.2		19.11		21.8	22.11	23.2	24.3				flaring out rim
124	2.1	12	4.1	5.1	6.1	7.1	15		10.8			10.5	25.8	15.3	16.2	17.4		19.63		21.15	22.13	23.2	24.2				externally projected
125	2.1	12	4.1	5.1	6.1	7.1	20		13.4			13.2	23.8	15.3	16.2	17.4		19.63	20.6	21.15	22.13	23.2	24.2				externally projected
126	2.7	12	4.1	5.2	6.1	7.1	20		5.59			5.59		15.1	16.3	17.4	18.12	19.5	20.6	21.5	22.13	23.3	24.3	25.1	26.1	27.4	externally projected
128	2.1	12	4.1	5.1	6.1	7.1	15		8.66			8.29	16.6	15.1	16.2	17.4	18.1		20.4		22.11	23.1	24.3				short beaked rim
129	2.1	12	4.1	5.1	6.1	7.1	17		11.6			10.1	26.6	15.5	16.2	17.4		19.63		21.14	22.11	23.2	24.2				externally projected
131	2.11	12	4.1	5.1	6.1	7.1	14		9.65			8.79		15.2	16.2	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
133	2.3	12	4.3	5.2	6.1	7.1			7.92				11.9	15.1	16.3	17.4		19.62		21.12	22.9	23.2	24.2				externally projected
136	2.1	12	4.1	5.1	6.1	7.1	13		9.2			7.51	21.7	15.3	16.2	17.4		19.26		21.13	22.11	23.2	24.5				externally projected
137	2.1	12	4.1	5.1	6.1	7.1			9.94			9.8	18.7	15.2	16.2	17.4		19.11	20.6	21.4	22.11	23.1	24.3				externally projected
139	2.1	11	4.1	5.1	6.2	7.1		4		4.3	3.77			15.2	16.2	17.4	18.12		20.6	21.2	22.11	23.5	24.3				Noncontiguous ,discoid
140	2.1	11	4.1	5.1	6.2	7.1		10		7	6.86			15.2	16.3	17.4	18.1		20.1		22.5	23.5	24.5				contigues flat
141	2.1	11	4.1	5.2	6.1	7.1	20		8.25		8.9	4.65	14.6	15.1	16.3	17.4	18.12	19.5	20.6	21.5	22.11	23.3	24.3				externally projected
142	2.1	11	4.1	5.12	6.2	7.1		9		12	9.59			15.1	16.3	17.4	18.1		20.1		22.2	23.5	24.5				contoguous concave
143	2.1	11	4.1	5.2	6.1	7.1			9.98		7.09	7.39	6.8	15.1	16.3	17.3	18.1	19.11	20.4	21.4	22.2	23.3	24.3	25.1	26.1	27.2	beaked rim
144	2.1	11	4.1	5.1	6.1	7.1	11		9.3		9.77	5.66	23.2	15.5	16.2	17.4		19.26		21.13	22.13	23.2	24.2				externally projected
145	2.11	11	4.1	5.1	6.1	7.1	14		11.1			10.8	26.8	15.5	16.1	17.4		19.63		21.15	22.11	23.2	24.2				externally projected
146	2.3	11	4.3	5.1	6.1	7.1	44		16.2		10.51	14.9	43	15.1	16.3	17.4		19.26		21.13	22.11	23.2	24.3	25.1	26.1	27.1	broad beaked rim flat brim
149	2.1	11	4.1	5.1	6.1	7.1	22		8.39			7.82		15.1	16.3	17.3	18.1	19.63	20.4	21.14	22.11	23.3	24.3				externally projected
150	2.2	11	4.2	5.2	6.1	7.1	26		8.92		8.15	7.43	25	15.2	16.2	17.4		19.63		21.14	22.5	23.3	24.3				externally projected flaring rim
151	2.1	11	4.1	5.2	6.1	7.1	23		6.09		7.07			15.3	16.2	17.4	18.1	19.19	20.4	21.13	22.11	23.5	24.5				externally projected

152	2.8	11	4.1	5.3	6.1	7.1	24		11.7		11.74	7.61	22.4	15.2	16.2	17.4	18.5	19.62	20.3	21.9	22.3	23.3	24.3	25.1	26.3	27.1	externally projected
153	2.1	11	4.1	5.1	6.1	7.1			6.49		5.15	4.55	15.4	15.1	16.4	17.3	18.12	19.5	20.6	21.5	22.11	23.2	24.3				short beaked
154	2.2	11	4.2	5.3	6.1	7.1	25		10.5		9.83	9.8	32.1	15.1	16.3	17.4		19.62		21.12	22.11	23.3	24.3				short beaked
156	2.4	11	4.4	5.2	6.1	7.1	16		6.72			5.73		15.1	16.3	17.4	18.6	19.56	20.4	21.9	22.6	23.3	24.3				externally projected
157	2.1	11	4.1	5.1	6.1	7.1	11		7.42		4.91	6.28		15.2	16.3	17.4	18.1	19.5	20.4		22.11	23.2	24.3				externally projected
158	2.1	11	4.1	5.2	6.1	7.1	11		8.76		10.44	6.17	21.6	15.3	16.2	17.4	18.1	19.5	20.4	21.5	22.13	23.3	24.3				short beaked rim
159	2.1 1	11	4.1	5.1	6.1	7.1	16		11.9		10.4	10.4	28	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
160	2.1	11	4.1	5.6	6.2	7.1		3		14	3.92			15.1	16.4	17.2		19.26		21.8	22.7	23.1	24.3				Noncontiguous,
161	2.1	11	4.1	5.3	6.1	7.1	15		9.7		6.82	9.5	24.5	15.2	16.3	17.4	18.12	19.63	20.6	21.15	22.11	23.2	24.3				beaked rim
162	2.6	11	4.1	5.1	6.1	7.1	8		4.7				5.16	15.1	16.4	17.2	18.12	19.11		21.15	22.13	23.2	24.3				externally projected
164	2.1	11	4.1	5.1	6.2	7.1		11		6.1	57			15.1	16.3	17.4	18.2	19.26	20.4		22.11	23.2	24.3				contiguous,flat
165	2.1	11	4.1	5.1	6.2	7.1		9		5.8	8.45			15.3	16.3	17.4		19.11		21.9	22.3	23.5	24.3				contiguous,flat
166	2.1	11	4.1	5.1	6.2	7.1		4		3.5	4.01			15.2	16.2	17.4	18.1	19.5		21.13	22.11	23.5	24.3				contiguous,flat
167	2.7	11	4.1	5.1	6.1	7.1			4			3.66		15.1	16.4	17.2		19.11		21.13	22.11	23.2	24.3				externally projected
169	2.1	11	4.1	5.1	6.1	7.1	26		11.5			11		15.3	16.2	17.4		19.26		21.13	22.11	23.5	24.5				externally projected
170	2.1	11	4.1	5.1	6.2	7.1		12		12	7.97			15.2	16.3	17.4	18.2	19.26	20.4		22.11	23.5	24.3				contiguous,flat
171	2.1	11	4.1	5.2	6.2	7.1		10		10				15.2	16.3	17.4		19.62		21.9	22.13	23.3	24.4				contiguous flat base
172	2.1	11	4.1	5.1	6.1	7.1	11		4.7			4.88		15.1	16.3	17.4		19.52		21.15	22.13	23.2	24.3				externally projected
174	2.1	11	4.1	5.2	6.2	7.1		16		11				15.1	16.4	17.3	18.1	19.63	20.1	21.14	22.3	23.3	24.3				contiguous flat
175	2.1	11	4.1	5.1	6.1	7.1	9c		2.83			2.6	5.09	15.1	16.4			19.11		21.4	22.11	23.3	24.3				externally projected
176	2.1	11	4.1	5.5	6.2	7.1		11			8.15			15.2	16.3	17.3		19.26		21.9	22.2	23.5	24.3	25.1	26.1	27.4	short pedestelled base
177	2.1	11	4.1	5.3	6.1	7.1	22		9.89			9.5	23.8	15.3	16.2	17.4		19.26		21.9	22.13	23.2	24.2				externally projected
181	2.2	11	4.2	5.1	6.2	7.1		7		5	7.61			15.1	16.3	17.4		19.62		21.12	22.9	23.2	24.3				Non contiguous,
182	2.2	10	4.2	5.1	6.2	7.1		10		5.4	7.19			15.3	16.2	17.4		19.54		21.8	22.6	23.2	24.2				contiguous flat base,
184	2.1	11	4.1	5.1	6.1	7.1	15		7.71			5.44		15.2	16.3	17.4		19.26		21.13	22.11	23.2	24.2				externally projected ,

185	2.11	11	4.1	5.1	6.1	7.1	13		9.74			8.97		15.5	16.1	17.4		19.26		21.13	22.13	23.2	24.2				externally projected
186	2.1	11	4.1	5.1	6.1	7.1	11		6.35					15.1	16.3	17.4	18.1	19.1	20.4	21.3	22.11	23.3	24.3				externally projected
188	2.11	11	4.1	5.1	6.1	7.1	16		10.6			10.4	23.4	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
189	2.11	10	4.1	5.1	6.1	7.1	11		10.1			9.88		15.5	16.2	17.4		19.63		21.15	22.13	23.2	24.2				externally projected
190	2.11	10	4.1	5.1	6.1	7.1	12		9.99		7.72	9.29	25.3	15.5	16.2	17.4	18.1		20.4		22.2	23.2	24.2				externally projected
192	2.1	10	4.1	5.3	6.1	7.1	30		12.7		10.59	11.6	24.7	15.2	16.2	17.4		19.23		21.7	22.11	23.2	24.2				beaked rim
193	2.1	10	4.1	5.1	6.2	7.1		10		7	5.89			15.1	16.3	17.4		19.5		21.5	22.13	23.5	24.3				contoguous,flat base
194	2.1	10	4.1	5.1	6.1	7.3	17		13.8		11.88	12.5	31.7	15.5	16.2	17.4	18.2	19.23	20.6		22.5	23.2	24.2				externally projected
195	2.1	10	4.1	5.1	6.2	7.1		10		7.1	5.29			15.1	16.3	17.4	18.1		20.1		22.5	23.1	24.1				contiguous flat
196	2.1	10	4.1	5.5	6.2	7.1		13		8.5		6.14		15.1	16.4	17.3		19.5		21.5	22.2	23.5	24.3	25.1	26.1	27.4	short pedestelled base
197	2.1	10	4.1	5.1	6.1	7.3	17		10.2		8.45	9.73		15.4	16.2	17.4		19.5		21.5	22.2	23.2	24.2				externally projected
198	2.11	10	4.1	5.1	6.1	7.3	17		10.2		8.4	9.73		15.4	16.2	17.4		19.5		21.5	22.2	23.2	24.2				externally projected
200	2.2	10	4.2	5.1	6.1	7.1	20		9.93		8.94	10.4	29.1	15.2	16.2	17.4		19.62		21.12	22.13	23.3	24.3				short beaked rim,
201	2.6	10	4.1	5.1	6.1	7.1	15		10.7		7.27	8.16	19.5	15.1	16.3	17.3		19.63		21.13	22.11	23.5	24.3	25.1	26.1	27.2	externally projected
202	2.11	10	4.1	5.1	6.1	7.1	15		9.9		9.66	9.27	16.9	15.5	16.1	17.4		19.19		21.5	22.11	23.2	24.2				externally projected
203	2.4	10	4.4	5.3	6.1	7.1	25		10.4		7.68	8,97	26.5	15.1	16.3	17.4		19.62		21.12	22.9	23.2	24.2				short beaked rim,
205	2.1	10	4.1	5.1	6.2	7.1		4		4.7	5.13			15.3	16.2	17.4	18.1	19.11	20.1	21.5	22.2	23.2	24.3				contoguous concave
206	2.1	10	4.1	5.1	6.2	7.1	5		5.23	6.5				15.1	16.3	17.4		19.26		21.7	22.7	23.2	24.3				Noncontiguous, discoid base
207	2.1	10	4.1	5.5	6.2	7.1		16		7				15.1	16.3	17.4		19.63		21.15	22.13	23.5	24.3				low pedestelled base
208	2.1	9	4.1	5.1	6.2	7.1		3		3.2	5.01			15.2	16.3	17.3	18.5	19.11		21.9	22.11	23.2	24.3				Noncontiguous disciod
212	2.1	9	4.1	5.2	6.1	7.1	18		9.35		8.73	8.09	37	15.1	16.3	17.4	18.12	19.63	20.6	21.14	22.11	23.3	24.3				externally projected
213	2.1	9	4.1	5.3	6.1	7.1	41		14.6		10.5	11.2	33.4	15.2	16.2	17.4	18.12	19.26		21.9	22.7	23.3	24.3				externally projected
214	2.1	9	4.1	5.3	6.1	7.1	30		12.2		12.7	11.9		15.4	16.2	17.4	18.12	19.63		21.15	22.11	23.3	24.3				short beaked rim,

215	2.1	9	4.1	5.1	6.2	7.1		3		6.3	4.43			15.1	16.3	17.4		19.23		21.7	22.2	23.3	24.3				Contiguous concave
216	2.1	9	4.1	5.1	6.1	7.1	7		5.3			4.53		15.1	16.3	17.3	18.1	19.11	20.1		22.2	23.1	24.3				externally projected
218	2.11	9	4.1	5.3	6.1	7.1	26		14		11.91	13.2		15.4	16.1	17.4	18.12	19.63		21.15	22.11	23.2	24.2				externally projected
219	2.5	9	4.1	5.1	6.1	7.3			11.2		11.15	11.1	26.7	15.4	16.1	17.4		19.26		21.13	22.11	23.2	24.2				short beaked rim,
220	2.11	9	4.1	5.1	6.1	7.1	14		9.71			9.43		15.4	16.2	17.4		19.26		21.13	22.11	23.2	24.2				flaring rim,gritty surface
221	2.8	9	4.3	5.3	6.1	7.1	33		15		9.32	12.2	32.3	15.1	16.3	17.3	18.6	19.1	20.4	21.3	22.9	23.3	24.3				short beaked rim,
222	2.1	9	4.1	5.3	6.1	7.1	27		12.1		12.74	11.6		15.4	16.2	17.4	18.12	19.63		21.14	22.11	23.2	24.2				externally projected
226	2.8	9	4.1	5.1	6.1	7.1	18		11		7.57	10.5	26.2	15.1	16.3	17.2		19.1	20.6		22.13	23.1	24.3	25.1	26.1	27.2	externally projected
227	2.1	9	4.1	5.1	6.1	7.1	15		11.3			10.2	29.4	15.4	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
228	2.1	9	4.1	5.1	6.1	7.1	15		9.13			9.51	21.2	15.3	16.2	17.4		19.63		21.14	22.11	23.2	24.2				short beaked rim
230	2.1	9	4.1	5.1	6.1	7.1			11.2			9.48	21.2	15.4	16.2	17.4	18.1		20.1		22.11	23.5	24.5				externally projected
232	2.1	9	4.1	5.1	6.1	7.1	15		9.62			9.4	21.6	15.3	16.2	17.4		19.5		21.5	22.11	23.2	24.2				externally projected
233	2.3	9	4.3	5.1	6.1	7.1	11		5.91			5.82		15.1	16.3	17.4		19.62		21.12	22.9	23.2	24.2				flaring
236	2.1	9	4.1	5.5	6.2	7.1		22		10		9.84		15.2	16.3	17.3	18.12	19.1	20.6		22.6	23.2	24.3				high pedestelled
237	2.1	9	4.1	5.6	6.2	7.1		3		26	5.16			15.2	16.3	17.2	18.11	19.26		21.14	22.11	23.5	24.3				Narrow solid base
238	2.11	9	4.1	5.3	6.1	7.3	16		13.6		13.34	12.9		15.4	16.2	17.4	18.12	19.63	20.6	21.15	22.11	23.3	24.3				externally projected
239	2.6	9	4.1	5.1	6.1	7.1	17		10.5		7.69	10.5		15.1	16.3	17.2		19.1	20.4		22.11	23.1	24.3	25.1	26.1	27.2	externally projected
240	2.1	9	4.1	5.1	6.2	7.1		5		4.8	4.18			15.2	16.3	17.4	18.5	19.63		21.8	22.13	23.2	24.3				Noncontiguous discoid
241	2.1	9	4.1	5.1	6.2	7.1		8		8.9	6.7			15.3	16.3	17.4	18.1		20.4		22.11	23.1	24.5				contiguous flat
243	2.1	9	4.1	5.1	6.2	7.1		7		9.9	9.99			15.1	16.3	17.4	18.12		20.6	21.14	22.7	23.2	24.3				contiguous flat base
245	2.1	9	4.1	5.3	6.1	7.1	24		6.09		9,12	4.92	19.9	15.2	16.3	17.4		19.64		21.15	22.11	23.3	24.3	25.1	26.2	27.1	bilateral projected
246	2.1	8	4.1	5.1	6.2	7.1		4		34	8.09			15.2	16.3	17.4		19.26		21.13	22.11	23.1	24.1				Noncontiguous discoid
247	2.11	9	4.1	5.3	6.1	7.1	15		12.8		12.29	11.5		15.4	16.2	17.4	18.12	19.63	20.6	21.14	22.11	23.3	24.3				externally projected
248	2.1	9	4.1	5.1	6.1	7.1	16		8.02		8.1	7.97	20.7	15.1	16.3	17.3		19.5		21.5	22.7	23.3	24.3	25.1	26.1	27.4	beaked rim

249	2.11	9	4.1	5.1	6.1	7.1	16		9.28		5.18	8.11		15.3	16.2	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
251	2.1	8	4.1	5.3	6.1	7.1	38		14.2		11.18	14.1	30.4	15.2	16.3	17.2	18.5	19.63	20.3	21.14	22.7	23.3	24.3	25.1	26.1	27.4	quardrangular rim
252	2.1	8	4.1	5.1	6.2	7.1		7		6.4	9.41			15.1	16.3	17.4	18.12			21.8	22.11	23.2	24.5				contiguous flat
253	2.11	8	4.1	5.1	6.1	7.1	14		11.5		9.27	9.49	28.8	15.5	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
254	2.1	8	4.1	5.1	6.1	7.1	14		11.2		10.69	9.15	21.7	15.4	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
257	2.1	8	4.1	5.1	6.1	7.1	13		9.52		7.14	8.92	18.1	15.2	16.3	17.3		19.63		21.13	22.5	23.3	24.3				short beaked rim
260	2.1	8	4.1	5.2	6.1	7.1	22		7.3			6.51		15.2	16.3	17.3	18.11	19.26	20.6	21.9	22.11	23.3	24.3				flaring out rim
261	2.11	8	4.1	5.1	6.1	7.1	22		12.2			10.1	29,90	15.4	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
263	2.1	8	4.1	5.1	6.1	7.1	11		5.5			4.18		15.2	16.3	17.4	18.5	19.5	20.3	21.5	22.7	23.3	24.3				externally projected
264	2.8	8	4.1	5.1	6.1	7.1			5.05		5.19	5.01		15.1	16.3	17.2		19.52		21.8	22.13	23.2	24.3				externally projected
265	2.7	8	4.1	5.1	6.1	7.1	8		5.23			5.2		15.1	16.3	17.2		19.26		21.9	22.13	23.2	24.3				beaked rim
267	2.1	8	4.1	5.1	6.1	7.1	17		12.5			11.3		15.1	16.3	17.4	18.12	19.26	20.6	21.9	22.13	23.3	24.3				short beaked,thick rim
269	2.1	7	4.1	5.5	6.2	7.1		15		8.2	8.45	6.74		15.2	16.2	17.4		19.11	20.5		22.7	23.1	24.3	25.1	26.1	27.4	high pedestelled base,
271	2.1	8	4.1	5.1	6.1	7.1	15		11.3			10.4	21.6	15.2	16.3	17.4	18.12		20.6		22.13	23.1	24.1				externally projected
272	2.1	8	4.1	5.3	6.1	7.1	38		13.5		11.28	13.8	30.7	15.2	16.3	17.2	18.5	19.63	20.3	21.14	22.7	23.3	24.3	25.1	26.1	27.4	quatrangular rim
273	2.1	8	4.1	5.1	6.1	7.1	12		11.3			11.2		15.1	16.3	17.4	18.12	19.1	20.6		22.13	23.1	24.3				beaded rim
275	2.2	7	4.2	5.1	6.1	7.1	13		6.54		4.96	2.86		15.1	16.3	17.4	18.2	19.5	20.2	21.5	22.5	23.3	24.3				concave sided bowl
276	2.7	7	4.1	5.1	6.1	7.1	6c		2.97			2.21		15.1	16.3	17.3		19.5		21.5	22.2	23.3	24.3				externally projected
277	2.11	7	4.1	5.3	6.1	7.1	17		15.7		14.29		15.6	15.4	16.2	17.4		19.64		21.15	22.11	23.2	24.2				quadrangular rim
278	2.1	7	4.1	5.1	6.2	7.1		6		9.2	8.92			15.2	16.3	17.4	18.12	19.5	20.6	21.5	22.13	23.3	24.3				contiguous flat base
280	2.1	7	4.1	5.5	6.2	7.1		40		14				15.3	16.2	17.3	18.5	19.26		21.5	22.6	23.2	24.3				low pedestelled base
281	2.1	7	4.1	5.5	6.2	7.1		31		17		13.7		15.2	16.3	17.4	18.2		20.2		22.11	23.5	24.5				high pedestelled,
282	2.2	7	4.2	5.1	6.1	7.1	16		10.9			9.5m	13.3	15.1	16.3	17.3	18.1	19.28	20.4		22.11	23.3	24.3				externally projected
283	2.1	7	4.1	5.4	6.2	7.1		4		4.3	6.35			15.1	16.3	17.4		19.26		21.13	22.11	23.1	24.2				Noncontiguous,discoid

284	2.8	7	4.3	5.4	6.1	7.1	14		7.66		6.22	5.62	14	15.2	16.3	17.4	18.6	19.28	20.4		22.9	23.2	24.3				externally projected
285	2.1	7	4.1	5.4	6.2	7.1		6		6.4	5,85			15.1	16.3	17.4	18.5			21.7	22.7	23.2	24.3				contiguous flat
286	2.1 1	7	4.1	5.1	6.1	7.1	14		10,4			9.21		15.5	16.1	17.4		19.26		21.15	22.13	23.2	24.2				externally projected
287	2.2	7	4.2	5.2	6.1	7.1	14		7.64		7.71	6.15	13.9	15.1	16.3	17.4	18.6		20.4	21.4	22.13	23.3	24.5				externally projected
288	2.1	7	4.1	5.1	6.1	7.1	15		8.87		5.57		13.6	15.1	16.3	17.3		19.5	20.6	21.5	22.5	23.5	24.3				beaked rim
291	2.1	7	4.1	5.3	6.1	7.1	33		16,8		6.63	10.5	32.3	15.3	16.2	17.4	18.1	19.63	20.6	21.14	22.11	23.3	24.3	25.1	26.1	27.4	externally projected
292	2.1	7	4.1	5.2	6.1	7.1	36		15.1		11.4	14.3	22	15.4	16.1	17.4	18.12	19.64	20.6	21.14	22.11	23.2	24.2	25.1	26.4	27.4	externally projected
293	2.1	7	4.1	5.1	6.1	7.1	8		4.12			3.66	6.78	15.1	16.3	17.3		19.5	20.3	21.5	22.7	23.5	24.3				externally projected
294	2.1	7	4.1	5.3	6.1	7.1	12		7.55		7.78	7.68	16.7	15.1	16.3	17.3		19.5		21.5	22.7	23.3	24.3				externally projected rim
296	2.1	7	4.1	5.4	6.1	7.1	9		6.96			4.87		15.2	16.3	17.4		19.26		21.13	22.2	23.2	24.2	25.1	26.1	27.4	convex sided bowl
297	2.1	7	4.1	5.1	6.1	7.1	18		13.2			11.9	24.6	15.5	16.1	17.4		19.64		21.15	22.11	23.2	24.2				externally projected
298	2.1 1	7	4.1	5.1	6.1	7.1	16		13.7			9.59		15.4	16.1	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
301	2.1	7	4.1	5.5	6.2	7.1		22		12				15.3	16.3	17.2	18.2	19.63		21.7	22.11	23.2	24.3				high pedestelled
302	2.1	7	4.1	5.1	6.2	7.1		4		16	10.3			15.2	16.3	17.4	18.1		20.4		22.11	23.5	24.5				contiguous flat base
304	2.8	7	4.1	5.1	6.1	7.1	11		8.48			7.56		15.2	16.3	17.4	18.1	19.28	20.5		22.11	23.2	24.3	25.1	26.2	27.5	short beaked rim
306	2.2	7	4.2	5.3	6.1	7.1	16		12.6		9.16	10.9	23.6	15.2	16.3	17.4	18.1			21.14	22.5	23.3	24.1				convex sided bowl
308	2.1	7	4.1	5.1	6.2	7.1		5		9./27	4.77			15.1	16.3	17.3	18.12	19.11		21.13	22.11	23.5	24.3	25.1	26.1	27.4	noncontiguous discoid
309	2.1	7	4.1	5.4	6.1	7.1	12		8.53		6.58	5.81		15.1	16.3	17.3	18.12	19.1		21.7	22.11	23.2	24.3	25.1	26.1	27.4	straight sided
310	2.1	7	4.1	5.1	6.1	7.1	9		6.31			5.47		15.2	16.2	17.4		19.5		21.5	22.2	23.3	24.3				everted rim
311	2.1	6	4.1	5.1	6.2	7.1		3		6.8	7.65			15.1	16.3	17.4		19.5	20.4		22.11	23.1	24.3				noncontiguous
312	2.1	7	4.1	5.3	6.1	7.1	23		16.6		14.14		16.1	15.4	16.2	17.4		19.23		21.6	22.11	23.2	24.2				quadrangular rim
313	2.8	6	4.1	5.2	6.1	7.1	26		15.8		10.9	12.5	27.9	15.2	16.3	17.4	18.1	19.54	20.4	21.14	22.11	23.3	24.2				internally beaked
315	2.7	6	4.1	5.1	6.1	7.1	10		7.16		8.95	4.83		15.4	16.2	17.2		19.26		21.14	22.11	23.3	24.3				convex sided bowl
316	2.1	6	4.1	5.4	6.1	7.1	12		8.35		4.9	5.87		15.3	16.2	17.3		19.52		21.5	22.2	23.3	24.3	25.1	26.1	27.4	straight sided bowl
317	2.1	6	4.1	5.4	6.1	7.1	11		9.89		7.93	8.32		15.3	16.2	17.4				21.5	22.11	23.3	24.3	25.1	26.3	27.4	incurved rim
318	2.2	6	4.2	5.4	6.1	7.1	9		8.85			4.7		15.1	16.3	17.3	18.5		20.3	21.14	22.6	23.3	24.3	25.1	26.3	27.1	convex sided bowl

319	2.1	6	4.1	5.1	6.1	7.1	13		8.8			7.51	15.4	15.2	16.3	17.4		19.26		21.9	22.7	23.3	24.3				quardrangular rim
321	2.2	6	4.2	5.1	6.1	7.1	10		9.98			6.38	22.1	15.1	16.3	17.4		19.54		21.8	22.7	23.2	24.2				externally projected
322	2.1	6	4.1	5.4	6.1	7.1	13		8.56		4.56	5.23		15.1	16.3	17.3	18.1	19.26	20.4	21.9	22.7	23.3	24.3				convex sided bowl
324	2.1	6	4.1	5.1	6.1	7.1	15		8.47		7.06	7.67	20.6	15.4	16.1	17.4		19.23		21.7	22.13	23.2	24.2				externally projected
325	2.11	6	4.1	5.1	6.1	7.1	14		13.5			8.19	20.8	15.4	16.1	17.4		19.63		21.15	22.11	23.2	24.2				externally projected
327	2.1	6	4.1	5.4	6.1	7.1	14		7.12		6.87	4.57		15.1	16.3	17.3	18.12	19.11	20.6	21.5	22.2	23.3	24.3				externally projected rim
329	2.1	6	4.1	5.4	6.1	7.1	14		11.3		7.41	6.86		15.2	16.3	17.4	18.1	19.5	20.4	21.5	22.11	23.3	24.3				convex sided bowl
333	2.1	5	4.1	5.1	6.2	7.1		7		5.7	7.51			15.1	16.3	17.4		19.28		21.13	22.11	23.5	24.5				contiguous flat
335	2.1	6	4.1	5.2	6.1	7.1			9.8		5.02	6.29	17.1	15.1	16.3	17.4		19.26		21.7	22.5	23.5	24.5				externally projected
338	2.1	6	4.1	5.3	6.1	7.1	10		7.86		6.93	6.38	16.7	15.1	16.3	17.4	18.2	19.26	20.2	21.9	22.5	23.2	24.2				externally projected rim
339	2.1	6	4.1	5.1	6.1	7.1	11		6.45		4.56	3.73		15.1	16.3	17.3	18.5	19.5		21.5	22.13	23.3	24.3				convex sided bowl
340	2.11	6	4.1	5.4	6.1	7.1	16		6.7		4.61	5.16		15.4	16.1	17.4		19.63		21.14	22.11	23.2	24.2				convex sided bowl
343	2.1	6	4.1	5.3	6.1	7.1	12		9.77		6.66	7.48	18.7	15.1	16.3	17.3	18.1	19.26	20.4	21.9	22.11	23.3	24.3				externally projected
345	2.2	6	4.2	5.4	6.1	7.1	12		6.35		4.5	4.49		15.1	16.3	17.4	18.5	19.5		21.5	22.13	23.3	24.3				externally projected
348	2.1	6	4.1	5.1	6.1	7.1	14		10.9			6.82	13.5	15.1	16.3	17.4		19.26	20.4		22.11	23.1	24.3				externally projected
349	2.2	5	4.2	5.1	6.2	7.1		5		5.8	5.9			15.1	16.3	17.4		19.62		21.5	22.13	23.4	24.3				noncontiguous discoid
350	2.1	5	4.1	5.2	6.1	7.1			9.3		6.19	6.09	16.7	15.2	16.3	17.4		19.26		21.9	22.7	23.3	24.3				externally projected
351	2.1	5	4.1	5.1	6.1	7.1	20		11.6		7.29	8.37		15.1	16.3	17.4		19.63	20.6	21.15	22.13	23.5	24.3				beaked rim
352	2.7	5	4.1	5.2	6.1	7.1	11		5.74	6.2		5.76	15.6	15.2	16.3	17.4	18.6	19.26	20.4	21.9	22.9	23.3	24.3				contiguous concave
353	2.1	5	4.1	5.1	6.1	7.1	17		13.6		7.99	3.83	19	15.4	16.1	17.4		19.63		21.14	22.11	23.2	24.2				externally projected
354	2.2	5	4.2	5.1	6.1	7.1	8		3.3			2.87		15.1	16.3	17.3		19.64		21.15	22.13	23.5	24.5				externally projected
355	2.2	5	4.2	5.2	6.1	7.1	18		7.01					15.2	16.3	17.4	18.5	19.63	20.3	21.15	22.6	23.2	24.2				externally projected
356	2.1	5	4.1	5.3	6.1	7.1	24		8.24		9.43	8.12	15.9	15.4	16.1	17.4		19.11		21.4	22.9	23.2	24.2				externally projected
357	2.1	5	4.1	5.1	6.2	7.1		5		10	7.71			15.2	16.3	17.4	18.1	19.5	20.4	21.5	22.2	23.5	24.5	25.1	26.2		contiguous flat base

358	2.11	5	4.1	5.2	6.1	7.1	21		11.3					15.4	16.1	17.2		19.26		21.9	22.7	23.2	24.2				dsh portion
359	2.1	5	4.1	5.1	6.2	7.1		7		7	5.89			15.1	16.3	17.4		19.64	20.4		22.11	23.5	24.4				Contiguous concave
360	2.1	5	4.1	5.5	6.2	7.1		16		8.7		4.3		15.2	16.3	17.4		19.11		21.5	22.2	23.2	24.3	25.1	26.1	27.4	high pedestelled base,
361	2.1	5	4.1	5.4	6.1	7.1	14		7.91			4.81		15.1	16.3	17.4		19.23		21.7	22.5	23.5	24.5				concavoconvex sided
363	2.1	5	4.1	5.2	6.1	7.1	13		6.02	6.9		5.47		15.1	16.3	17.4	18.1	19.26	20.4		22.11	23.3	24.3				externally projected
364	2.1	5	4.1	5.1	6.1	7.1	9		5.78					15.2	16.3	17.4	18.1	19.63	20.3	21.8	22.11	23.3	24.3				externally projected
365	2.1	5	4.1	5.1	6.2	7.1		6		4.5	9.15			15.2	16.3	17.4	18.2	19.63		21.7	22.13	23.5	24.3				Contiguous concave
366	2.8	5	4.1	5.1	6.1	7.1	6		3.42			3.3		15.1	16.2	17.4	18.12	19.63		21.15	22.13	23.2	24.3				externally projected
367	2.1	5	4.1	5.4	6.2	7.1		8		5	5.34			15.1	16.3	17.4		19.54		21.4	22.11	23.3	24.3	25.1	26.1	27.4	contiguous flat
368	2.1	5	4.1	5.4	6.2	7.1		6		6	4.88			15.1	16.3	17.4	18.1	19.11	20.4	21.4	22.5	23.3	24.5	25.1	26.1	27.4	contiguous flat
369	2.1	5	4.1	5.1	6.1	7.1	6		3.66			3.45		15.1	16.3	17.4	18.12	19.63		21.15	22.13	23.2	24.2				externally projected
370	2.1	5	4.1	5.2	6.1	7.1	12		7.11			5.03		15.1	16.3	17.4		19.5		21.5	22.13	23.3	24.3				externally projected
371	2.1	5	4.1	5.1	6.1	7.1	6		5.08		2.86	4.52	6.5	15.2	16.3	17.3		19.5		21.5	22.11	23.2	24.2				externally projected
372	2.1	5	4.1	5.1	6.2	7.1		5		3.1	4.07			15.2	16.3	17.3		19.63		21.14	22.11	23.2	24.2				contiguous flat
373	2.7	5	4.1	5.2	6.1	7.1	21		12.5					15.4	16.1	17.3		19.26		21.9	22.7	23.2	24.2				quadrangular rim
374	2.1	5	4.1	5.1	6.2	7.1		5		9.1	9.34			15.2	16.3	17.4	18.1		20.4		22.11	23.5	24.5				noncontiguous discoid
375	2.11	5	4.1	5.1	6.1	7.3	17		7.8		7.7	7.53		15.4	16.1	17.4		19.26		21.15	22.11	23.2	24.2				externally projected
376	2.1	5	4.1	5.1	6.1	7.1	16		12.3		5.36		14.9	15.2	16.3	17.4		19.26	20.4		22.11	23.5	24.3				externally projected
377	2.8	5	4.1	5.1	6.1	7.1	16		11			6.15	16.3	15.1	16.3	17.3	18.1	19.28	20.4	21.13	22.11	23.5	24.5	25.1	26.3	27.4	short beaked rim
378	2.1	5	4.1	5.1	6.1	7.1	8		7.31		6.17	5.88	15.2	15.4	16.1	17.4	18.11			21.13	22.11	23.2	24.2				externally projected
379	2.8	5	4.1	5.3	6.1	7.1	13		7.52		5.58	5.66	8.99	15.1	16.3	17.4	18.2	19.63	20.2	21.15	22.11	23.3	24.3				externally projected
382	2.1	5	4.1	5.1	6.1	7.3	19		5.96		4.94	6.64	22.3	15.3	16.2	17.4		19.63		21.13	22.11	23.5	24.3				externally projected
383	2.8	5	4.1	5.1	6.1	7.1			12.5			8.13	23	15.1	16.3	17.4	18.1	19.1	20.4	21.3	22.11	23.5	24.3				externally projected
384	2.1	5	4.1	5.1	6.2	7.1				6.7	8.53			15.1	16.3	17.4	18.12	19.23	20.6	21.7	22.13	23.5	24.5				contiguous flat

385	2.11	5	4.1	5.1	6.1	7.3	23		8.27		8.78	7.4	14.1	15.4	16.2	17.4		19.26		21.13	22.13	23.2	24.2				externally projected
386	2.1	5	4.1	5.3	6.1	7.1	25		8.02		7.15		20.6	15.4	16.2	17.4	18.12		20.6		22.11	23.1	24.1				externally projected
387	2.1	5	4.1	5.2	6.1	7.1	19		11.3		6.66	11.2	27.1	15.2	16.3	17.3	18.1	19.5	20.4	21.5	22.11	23.3	24.3	25.1	26.1	27.4	externally projected
388	2.11	5	4.1	5.1	6.1	7.1	20		12.6		10.98	9.66	16.6	15.5	16.1	17.4		19.26		21.9	22.11	23.2	24.2				externally projected
389	2.1	5	4.1	5.1	6.1	7.1	13		12.7			11.3	20,13	15.2	16.3	17.4	18.1		20.1		22.11	23.1	24.1				externally projected
390	2.1	5	4.1	5.1	6.1	7.3	18		7.88		4.35	9	13.8	15.4	16.1	17.4		19.5		21.15	22.13	23.2	24.2				externally projected
391	2.1	5	4.1	5.1	6.1	7.1	25		11.4			8.59	26.2	15.2	16.3	17.4		19.28	20.6		22.13	23.1	24.2				beaked rim
392	2.1	5	4.1	5.1	6.1	7.1	18		7.21			6.41	16.7	15.2	16.3	17.3	18.1	19.63		21.13	22.5	23.3	24.3				externally projected
393	2.1	5	4.1	5.4	6.1	7.1			8.71		8.08	2.26		15.2	16.3	17.4	18.1	19.26		21.13	22.11	23.3	24.3				convex sided bowl
395	2.1	5	4.1	5.1	6.1	7.1	25		15.8			7.26		15.4	16.1	17.4	18.12			21.13	22.11	23.2	24.2				externally projected
396	2.1	5	4.1	5.4	6.1	7.1	18		8.18			4.32		15.1	16.3	17.3	18.1	19.5	20.4	21.5	22.11	23.3	24.3	25.1	26.1	27.4	convex sided bowl
397	2.1	5	4.1	5.1	6.1	7.1	16		7.35		8.86	6.2	19.1	15.2	16.3	17.4		19.5		21.13	22.13	23.5	24.2				externally projected
398	2.2	5	4.2	5.3	6.1	7.1	25		12.7			9.72		15.2	16.3	17.4	18.5	19.63	20.3		22.6	23.2	24.2	25.1	26.2	27.1	externally projected
399	2.1	5	4.1	5.2	6.1	7.1	40		21.6		11.09	14.6	29.8	15.2	16.3	17.4	18.1	19.11	20.1	21.4	22.2	23.3	24.3	25.1	26.1	27.4	externally projected
400	2.8	5	4.1	5.1	6.1	7.1	14		9.43		5.96	9.51		15.2	16.2	17.4	18.5	19.56	20.3		22.2	23.1	24.3				beaded rim
401	2.2	5	4.2	5.4	6.1	7.1			7.07			3.36		15.1	16.3	17.4	18.5	19.26	20.3	21.9	22.6	23.3	24.3	25.1	26.1	27.1	straight sided bowl
402	2.7	5	4.1	5.4	6.1	7.1	18		8.6			5.29		15.1	16.3	17.3		19.11		21.5	22.11	23.3	24.3	25.1	26.1	27.4	externally projected
403	2.8	5	4.1	5.1	6.1	7.1	21		9.19		6.98	6.26	23	15.2	16.3	17.3		19.11		21.4	22.5	23.3	24.3	25.1	26.1	27.1	externally projected
404	2.6	5	4.1	5.4	6.1	7.1			6.39			3.66		15.1	16.4	17.3		19.52		21.9	22.5	23.3	24.3				convex sided bowl
405	2.6	5	4.1	5.1	6.1	7.1	9		12			13.5		15.1	16.3	17.2	18.2	19.5		21.5	22.5	23.2	24.3	25.1	26.1	27.4	externally projected
408	2.1	5	4.1	5.1	6.1	7.1	12		11.9					15.2	16.3	17.4	18.1	19.5	20.4		22.11	23.1	24.3	25.1	26.1	27.4	beaded rim
409	2.2	5	4.2	5.1	6.1	7.1	11		12.7			10.9		15.1	16.4	17.3		19.26	20.6	21.15	22.13	23.5	24.3				beaded rim
410	2.8	5	4.1	5.1	6.1	7.1	7					4.88		15.2	16.3	17.4		19.63		21.5	22.2	23.2	24.3				externally projected
411	2.2	5	4.2	5.1	6.2	7.1		6		12	9.18			15.1	16.3	17.4		19.62		21.12	22.11	23.2	24.2				Noncontiguous disciod

413	2.1	5	4.1	5.4	6.1	7.1	16		6.86		5.36	4.71		15.2	16.3	17.3		19.5		21.5	22.11	23.3	24.3				convex sided bowl
414	2.1	5	4.1	5.1	6.2	7.1		4		6.6				15.2	16.3	17.4		19.54		21.8	22.11	23.5	24.3				noncontiguous discoid
415	2.1	5	4.1	5.1	6.1	7.1	14		14.6			7.11		15.4	16.1	17.4		19.63		21.14	22.13	23.5	24.5				beaded rim
416	2.1	5	4.1	5.1	6.1	7.1	10		7.67			6.03		15.2	16.3	17.4		19.28		21.15	22.11	23.1	24.3				short beaked rim
417	2.11	5	4.1	5.1	6.1	7.2			14.6			8.21	18.5	15.4	16.1	17.4	18.11	19.28		21.14	22.11	23.2	24.2				externally projected
418	2.2	5	4.2	5.4	6.1	7.1	13		7.98		6.3	4.87		15.1	16.3	17.4	18.5		20.3	21.15	22.6	23.1	24.3	25.1	26.1	27.4	straight sided
422	2.8	5	4.2	5.4	6.1	7.1			8.09		6.92	5.3		15.1	16.3	17.2	18.2	19.11		21.4	22.5	23.3	24.3	25.1	26.1	27.2	convex sided bowl
423	2.1	5	4.1	5.1	6.1	7.1			5.04		3.22	4.82		15.2	16.2	17.4		19.5		21.13	22.6	23.2	24.3				externally projected
424	2.1	5	4.1	5.4	6.2	7.1		6		10	9.09			15.2	16.3	17.4		19.26		21.5	22.11	23.3	24.1				Contiguous concave
425	2.1	5	4.1	5.1	6.1	7.1	11		12.4					15.2	16.3	17.4	18.1	19.5	20.4		22.11	23.1	24.1				beaded rim
426	2.1	5	4.1	5.4	6.1	7.1	19		9.2			5.65		15.1	16.3	17.4	18.5	19.63		21.4	22.11	23.3	24.3				convex sided bowl ,
427	2.1	5	4.1	5.1	6.1	7.1	7		4.58			4.19	7.8	15.2	16.3	17.4		19.26		21.5	22.11	23.1	24.1				externally projected
428	2.1	5	4.1	5.2	6.1	7.1	23		13	8.8				15.2	16.3	17.4	18.1	19.5	20.4	21.13	22.11	23.3	24.1				externally projected
429	2.1	5	4.1	5.1	6.1	7.1			11.9		9.23	10.7		15.4	16.2	17.4		19.5		21.4	22.2	23.2	24.2				externally projected
431	2.1	5	4.1	5.1	6.1	7.1	21		10.3		9.02	7.12		15.1	16.3	17.4		19.28		21.7	22.13	23.2	24.3				externally projected
434	2.1	4	4.1	5.1	6.2	7.1				5.8	5.51			15.2	16.3	17.4		19.26		21.9	22.7	23.1	24.5				contiguous flat
435	2.1	5	4.1	5.4	6.1	7.1	12		6.5			3.4		15.1	16.3	17.2		19.26		21.9	22.11	23.3	24.3	25.1	26.1	27.4	straight sided
436	2.1	5	4.1	5.1	6.1	7.1	14		11.4			5.37	17.4	15.4	16.1	17.4		19.63		21.14	22.11	23.5	24.5				externally projected
437	2.1	5	4.1	5.1	6.1	7.1	16		8.09			7.71	10.7	15.2	16.3	17.4		19.26		21.14	22.2	23.5	24.5				externally projected
438	2.3	5	4.1	5.1	6.1	7.1	20		11			6.63		15.4	16.1	17.4		19.23		21.15	22.5	23.5	24.5				externally projected
439	2.3	4	4.3	5.3	6.1	7.1	29		17.1		13.01	7.84	30.3	15.1	16.3	17.4		19.62	20.4	21.9	22.9	23.3	24.2				externally projected
442	2.1	4	4.1	5.1	6.1	7.3	21		10.8			6.24		15.3	16.2	17.4		19.63		21.14	22.13	23.2	24.2				externally projected
443	2.1	3	4.1	5.1	6.2	7.1		4		5.3	5.96			15.2	16.3	17.4	18.1	19.63	20.4		22.11	23.5	24.3				noncontiguous discoid
445	2.1	4	4.1	5.1	6.1	7.1	8		5.38			3.99		15.2	16.3	17.4		19.5	20.4	21.5	22.2	23.3	24.3				short beaked rim

446	2.1	4	4.1	5.4	6.1	7.1	22		10,52		7.01	5.06		15.1	16.3	17.2		19.1		21.3	22.13	23.3	24.3				convex sided bowl
447	2.1	4	4.1	5.3	6.1	7.1			16.5		15.48	9.92		15.4	16.2	17.4		19.23		21.7	22.2	23.2	24.2				externally projected
449	2.1	4	4.1	5.1	6.1	7.1	10		15.2					15.4	16.2	17.4	18.1	19.23	20.1	21.7	22.3	23.2	24.2				externally projected
450	2.1	4	4.1	5.1	6.1	7.1	12		7.25			4.81		15.2	16.3	17.4		19.28		21.13	22.7	23.2	24.2				externally projected rim
452	2.1	4	4.1	5.2	6.1	7.1			6.89			5.42		15.2	16.3	17.4	18.11	19.63	20.6		22.11	23.3	24.3				externally projected rim
453	2.3	4	4.3	5.1	6.1	7.1	14		12.6		6.29		12.3	15.2	16.3	17.4		19.62		21.12	22.9	23.2	24.2				quadrangular rim
454	2.7	3	4.1	5.1	6.1	7.1	14					9.83	14	15.2	16.3	17.2		19.11		21.13	22.7	23.5	24.3				beaded rim
456	2.1	3	4.1	5.5	6.2	7.1		29			8.98			15.2	16.2	17.4	18.1		20.4		22.11	23.1	24.1				low pedestelled base
457	2.11	3	4.1	5.1	6.1	7.1	17m		11.3			9.1	21.6	15.3	16.2	17.4		19.28		21.13	22.11	23.5	24.5				beaded rim
459	2.1	3	4.1	5.5	6.2	7.1		17		9.5	7.02	8.36		15.2	16.3	17.4	18.1			21.9	22.11	23.5	24.3				externally projected rim
460	2.3	3	4.3	5.1	6.1	7.1	18m		8.8		7.76	7.28	15.2	15.1	16.3	17.4		19.62		21.12	22.6	23.5	24.5	25.1	26.3	27.1	beaked rim
461	2.1	3	4.1	5.1	6.2	7.1		6		5	8.67			15.2	16.3	17.3		19.26		21.9	22.13	23.3	24.5				contiguous flat
463	2.1	3	4.1	5.1	6.2	7.1				8.8	6.64			15.2	16.3	17.4		19.28		21.13	22.13	23.2	24.2				contiguous flat
464	2.1	3	4.1	5.2	6.1	7.1	25		8.65			6.1	33.5	15.3	16.2	17.4		19.63		21.15	22.13	23.2	24.2				externally projected rim
465	2.1	3	4.1	5.5	6.2	7.1		20		14				15.2	16.3	17.4	18.5		20.3		22.5	23.5	24.5				high pedestelled base,
466	2.8	3	4.1	5.2	6.1	7.1	21		12.6		20.1			15.2	16.3	17.4	18.1	19.63	20.1		22.2	23.3	24.1	25.1	26.1	27.4	Bilateral projection
467	2.3	3	4.3	5.4	6.1	7.1	17		17.1					15.1	16.3	17.4	18.6	19.63	20.4	21.15	22.9	23.3	24.3				convex sided bowl
468	2.1	3	4.1	5.1	6.2	7.1		11		6.6	4.98			15.3	16.2	17.4	18.12	19.28	20.6		22.13	23.1	24.3				noncontoguous disciod
469	2.1	3	4.1	5.1	6.2	7.1		5		8.7	6.57			15.2	16.3	17.4	18.1	19.63	20.1		22.7	23.1	24.3				noncontiguous discoid
471	2.8	3	4.1	5.1	6.1	7.1	14		12.8			14.7		15.1	16.3	17.4	18.1	19.11	20.4	21.4	22.11	23.5	24.3				quadrangular rim
472	2.1	3	4.1	5.5	6.2	7.1		18		10				15.3	16.2	17.4	18.5	19.11		21.7	22.2	23.2	24.3				high pedestelled edge
473	2.1	3	4.1	5.4	6.1	7.2	11		5.81			4.85		15.3	16.2	17.4		19.23		21.6	22.11	23.5	24.5				convex sided bowl
474	2.1	3	4.1	5.1	6.1	7.1	10		7.89					15.1	16.3	17.4	18.1		20.1		22.2	23.1	24.1				beaded rim
475	2.1	3	4.1	5.1	6.1	7.1			11.4		9.21			15.2	16.3	17.3	18.2	19.63		21.7	22.13	23.5	24.3	25.1	26.1	27.4	beaked rim

476	2.1	3	4.1	5.1	6.1	7.1	15		11.2					15.1	16.3	17.4	18.1	19.63	20.4		22.11	23.5	24.2	25.1	26.1	27.4	beaded rim
477	2.1	3	4.1	5.1	6.1	7.1	12					5.94		15.3	16.2	17.4	18.5		20.3		22.6	23.1	24.5				flarng rim
478	2.1	3	4.1	5.1	6.1	7.1	8		4.26			3.76		15.2	16.3	17.4		19.63	20.4		22.11	23.1	24.2				flarng rim
479	2.8	3	4.1	5.1	6.1	7.1	14		8.94			5,.82		15.1	16.3	17.3	18.2	19.2	20.2	21.2	22.5	23.3	24.3				flarng rim
480	2.1	3	4.1	5.4	6.2	7.1				4.7	4.73			15.1	16.3	17.3	18.12			21.5	22.11	23.3	24.1	25.1	26.1	27.4	contiguous flat
481	2.1	3	4.1	5.2	6.2	7.1				5.4	7.28			15.2	16.3	17.3	18.5			21.5	22.11	23.3	24.1	25.1	26.1	27.4	contiguous flat base
482	2.4	3	4.4	5.4	6.1	7.1	15		5.82			3.82		15.1	16.3	17.4	18.5			21.5	22.6	23.2	24.5				convex sided bowl
486	2.1	3	4.1	5.1	6.1	7.1	16		9.87					15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				beaded rim
487	2.1	3	4.1	5.1	6.2	7.1		5c m			5.62			15.2	16.3	17.3	18.12	19.23	20.6		22.13	23.5	24.3				Contiguous concave
488	2.1	3	4.1	5.1	6.1	7.1	23		10.9			7.76	31.3	15.3	16.2	17.4	18.12	19.63	20.6	21.14	22.11	23.2	24.2				externally projected everted
489	2.1	2	4.1	5.4	6.2	7.1				9	4.62			15.2	16.3	17.4	18.1	19.5	20.4	21.5	22.11	23.3	24.3				Contiguous concave
490	2.1	2	4.1	5.1	6.1	7.1	20		15.3			14.3	29	15.2	16.3	17.3	18.11	19.1	20.6	21.14	22.11	23.5	24.3	25.1	26.1	27.2	
492	2.1	2	4.1	5.12	6.1	7.1	12			7.6		5.75		15.3	16.2	17.4	18.1		20.4		22.11	23.1	24.1				incurved rim
493	2.1	2	4.1	5.1	6.1	7.1	14		16.6			9.92	19.2	15.2	16.3	17.3		19.52		21.5	22.11	23.5	24.3	25.1	26.1	27.4	beaked rim
495	2.1	2	4.1	5.4	6.2	7.1				6.6	6.82			15.2	16.3	17.3	18.1	19.63	20.4	21.14	22.13	23.3	24.3				contoguous concave
496	2.7	2	4.5	5.1	6.1	7.1	16		11.1		9.21		22.6	15.4	16.1	17.4		19.64	20.2		22.11	23.2	24.3				quadrangular rim
497	2.7	2	4.5	5.1	6.1	7.1			13.8			7.36	26.1	15.4	16.2	17.4		19.5		21.15	22.11	23.2	24.2				short beaked rim
499	2.3	2	4.3	5.4	6.1	7.1			9.47			4.97		15.1	16.3	17.3	18.6	19.28	20.4	21.13	22.9	23.3	24.3				straight sided bowl
501	2.1	2	4.1	5.4	6.1	7.1			7.7		3.73	4.46		15.2	16.3	17.3		19.63		21.14	22.7	23.3	24.3	25.1	26.1	27.2	convex sided bowl
502	2.1	2	4.1	5.4	6.1	7.1	14		6.6			3.15		15.2	16.3	17.2		19.26		21.9	22.7	23.3	24.3	25.1	26.1	27.4	straight sided bowl
504	2.1	2	4.1	5.1	6.1	7.1	10		8.3		3.82			15.2	16.3	17.4	18.12		20.6		22.13	23.1	24.1				beaded rim
505	2.2	2	4.2	5.5	6.2	7.1					9.61			15.1	16.3	17.3	18.12	19.5	20.6	21.5	22.13	23.3	24.3	25.1	26.1	27.4	dish portion of a dish on stand
506	2.1	2	4.1	5.1	6.2	7.1				5.6	7.33			15.3	16.2	17.4	18.1	19.63	20.4	21.14	22.11	23.2	24.2				contiguous flat
508	2.1	2	4.1	5.1	6.1	7.1	13		11.7		4.09			15.2	16.3	17.4		19.28	20.3		22.13	23.5	24.3				flaring
509	2.1	2	4.1	5.4	6.1	7.1	18		7.72			6,63	12.9	15.2	16.3	17.4		19.26	20.5		22.3	23.1	24.2				externally projected rim
511	2.1	2	4.1	5.4	6.1	7.1			8.8		7.08	6.34	17	15.2	16.2	17.3		19.63		21.14	22.11	23.3	24.3				externally projected
512	2.1	2	4.1	5.1	6.1	7.1			9		8.21	5.61		15.3	16.2	17.4	18.12			21.14	22.13	23.1	24.2				short beaked rim
514	2.1	2	4.1	5.5	6.2	7.1					6.28			15.2	16.3	17.3	18.2	19.26		21.7	22.5	23.3	24.3	25.1	26.1	27.4	brocken dish

515	2.1	2	4.1	5.2	6.1	7.1	31		8.64			7.96		15.2	16.3	17.2	18.1	19.11	20.6	21.4	22.9	23.3	24.3				beaded rim
516	2.7	2	4.5	5.1	6.1	7.1	20		13.9			8.64		15.4	16.1	17.4		19.5	20.6		22.5	23.2	24.2				beaded rim
517	2.2	2	4.2	5.2	6.2	7.1				9.7	6.73			15.1	16.3	17.4	18.6		20.3		22.6	23.1	24.5				contiguous flat
518	2.1	2	4.1	5.12	6.2	7.1					9.51			15.2	16.3	17.4	18.12		20.1		22.2	23.1	24.2				body portion
519	2.1	2	4.1	5.4	6.1	7.1	6		5.47		4.5	3.69	10.9	15.1	16.3	17.4	18.12	19.11	20.6	21.4	22.13	23.3	24.3				externally projected rim, flat brim
520	2.7	2	4.5	5.4	6.1	7.1	14		7.29		5.77	4.02		15.2	16.3	17.2		19.26		21.13	22.11	23.3	24.3				concavo convex sided bowl
521	2.1	2	4.1	5.3	6.1	7.1	24		12.7		11.78	6.53	17.9	15.3	16.2	17.3		19.5		21.5	22.2	23.5	24.5				Bilateral projected
522	2.1	2	4.1	5.1	6.1	7.1	23		11.3		7.36	8.14	17.9	15.2	16.3	17.3	18.2	19.28	20.2		22.5	23.1	24.3	25.1	26.1	27.2	short beaked rim
523	2.1	2	4.1	5.1	6.1	7.1	18		12,2 4				19.3	15.4	16.2	17.4		19.28		21.13	22.11	23.2	24.2				externally projecet
524	2.1	2	4.1	5.5	6.2	7.1		22		8.6	6.99			15.2	16.3	17.3		19.5	20.4		22.7	23.1	24.4				Low pedestelled base
525	2.1	2	4.1	5.1	6.1	7.1	33		16.8				25.4	15.2	16.3	17.4		19.5		21.5	22.11	23.3	24.3	25.1	26.1	27.4	externally projected drooping rim
526	2.3	2	4.3	5.1	6.1	7.1	8		5.08			3.93		15.1	16.3	17.3		19.26		21.7	22.5	23.2	24.3				externally projected
527	2.9	2	4.4	5.1	6.1	7.1	24		10.6					15.2	16.3	17.4	18.2	19.63	20.2	21.15	22.5	23.3	24.3				externally projected everted rim
528	2.1	2	4.1	5.1	6.2	7.1				8.3	5.27			15.2	16.3	17.4		19.54	20.4		22.11	23.1	24.2				contoguous flat
529	2.1	2	4.1	5.12	6.2	7.1					14			15.2	16.3	17.4	18.1		20.1		22.2	23.5	24.5				body portion with perforation
530	2.1	2	4.1	5.1	6.2	7.1		11		8.7	7.81			15.2	16.3	17.4	18.1		20.4		22.13	23.1	24.1				contiguous concave
531	2.1	2	4.1	5.1	6.2	7.1		7		9.4	8.53			15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				contiguous flat
533	2.1	2	4.1	5.3	6.1	7.1	22		10.2		8.96	5.96	17.4	15.2	16.3	17.3		19.63		21.14	22.11	23.3	24.3	25.1	26.1	27.4	beaked rim
534	2.1	2	4.1	5.1	6.1	7.1	6		3.62		3.63	3.13		15.1	16.3	17.4	18.1		20.4		22.2	23.5	24.5	25.1	26.1	27.4	externally projected
535	2.1	2	4.1	5.1	6.1	7.1	14		9.61		5.04	4.87		15.2	16.3	17.4		19.64	20.4		22.11	23.1	24.3	25.1	26.3	27.4	externally projected
536	2.2	2	4.2	5.1	6.2	7.1		8		6.5	6.48			15.2	16.3	17.3		19.62		21.12	22.6	23.5	24.3				noncontiguous discoid
538	2.1	2	4.1	5.1	6.1	7.1			5.85			4.15		15.2	16.3	17.4	18.1	19.5	20.4	21.5	22.5	23.3	24.3				externally projected flaring rim
539	2.1	2	4.1	5.1	6.1	7.1	13		10.4			8.13		15.3	16.2	17.4		19.26		21.13	22.11	23.5	24.5				externally projected

540	2.1	2	4.1	5.1	6.1	7.1	20		12.7		8.9	7.15		15.2	16.3	17.4	18.1	19.1	20.4		22.11	23.5	24.3				externally projected rim
543	2.1	2	4.1	5.1	6.1	7.1	10		10.1			4.85		15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				short beaked rim,
544	2.1	2	4.1	5.1	6.1	7.1	19				4.72	6.86	11.9	15.2	16.3	17.3		19.1		21.3	22.11	23.1	24.3				short beaked
545	2.1	2	4.1	5.1	6.1	7.1			15.2				21.2	15.2	16.3	17.4	18.1		20.1		22.5	23.5	24.5				beaked rim
546	2.1	2	4.1	5.1	6.2	7.1		4		4.5	6.2			15.2	16.3	17.4	18.12	19.5		21.14	22.11	23.1	24.3				contiguous flat
547	2.1	2	4.1	5.3	6.1	7.1	36		7.89		8.84	6.6	16.2	15.2	16.3	17.4	18.1		20.3		22.2	23.5	24.5	25.1	26.1	27.4	externally projected
549	2.1	2	4.1	5.1	6.1	7.1	25		8.21			5.39		15.2	16.3	17.4	18.2		20.2		22.11	23.5	24.5				incurved rim
550	2.1	2	4.1	5.1	6.1	7.1	13		10.9			9.81		15.2	16.3	17.4	18.2	19.11	20.2	21.4	22.11	23.3	24.3				externally projected
551	2.1	2	4.1	5.12	6.2	7.1					25.63			15.2	16.3	17.4	18.12		20.3		22.13	23.1	24.4				thick sherd with perforation
552	2.2	2	4.2	5.1	6.2	7.1				9.5	10.57			15.2	16.3	17.4		19.63		21.14	22.2	23.1	24.5				contiguous flat
553	2.1	2	4.1	5.4	6.1	7.1	16		5.16		5.52	3.88		15.2	16.3	17.3	18.12		20.6		22.13	23.3	24.3				concavo convex sided bowl
554	2.1	2	4.1	5.1	6.1	7.1			9.17			5.05		15.2	16.3	17.3	18.1	19.63	20.4	21.14	22.11	23.3	24.3				externally projected rim
555	2.2	2	4.2	5.1	6.2	7.1				3.7	6.7			15.2	16.3	17.4		19.26		21.5	22.11	23.1	24.5				contoguous flat
557	2.3	2	4.3	5.3	6.1	7.1	46		12.9		8.82	8.32	23.4	15.1	16.3	17.3	18.5	19.28	20.3	21.13	22.6	23.3	24.3				short beaked
558	2.1	2	4.1	5.3	6.1	7.1	22		11.2		10.28	7.62	18.8	15.2	16.3	17.4	18.1	19.5	20.4		22.11	23.1	24.3				beaked rim
559	2.1	2	4.1	5.5	6.2	7.1		29		16				15.2	16.3	17.3	18.1	19.56	20.4		22.11	23.1	24.3				short pedestelled base
560	2.1	2	4.1	5.4	6.1	7.1			8.15			3.89		15.2	16.3	17.4	18.1	19.11	20.1		22.2	23.3	24.3				convex sided bowl
561	2.1	2	4.1	5.4	6.1	7.1	14		8.45		6.65	4.23		15.2	16.3	17.3		19.26	20.3		22.5	23.5	24.3				concovo convex sided
562	2.2	2	4.2	5.4	6.1	7.1	34		13.2		9.87		13.7	15.2	16.3	17.2	18.2	19.26	20.2	21.9	22.5	23.3	24.3	25.1	26.1	27.2	incurved rim thick rim
564	2.1	2	4.1	5.1	6.1	7.1	14		10..4 9					15.2	16.3	17.3	18.1	19.1	20.5		22.11	23.1	24.3				beaded rim
565	2.2	2	4.2	5.5	6.2	7.1		24		7				15.2	16.3	17.4	18.6	19.26	20.4		22.9	23.1	24.2				high pedestelled base
567	2.1	2	4.1	5.4	6.1	7.1	12		7.06		6.13	4.22		15.2	16.3	17.4		19.5		21.5	22.7	23.3	24.3				concovo convex sided
568	2.1	2	4.1	5.1	6.1	7.1	21		12.5			9.98	15	15.2	16.3	17.3	18.1	19.28	20.4	21.13	22.11	23.1	24.3				beaded rim
570	2.1	2	4.1	5.1	6.1	7.1	22		10.6		7.17			15.2	16.3	17.4	18.1	19.63	20.4		22.11	23.1	24.2				externally projected rim

572	2.2	2	4.2	5.1	6.1	7.1	10		8.4		4.24	6.1	11.5	15.1	16.3	17.4	18.6	19.28	20.4	21.13	22.9	23.5	24.3				externally projected rim
574	2.1	2	4.1	5.4	6.1	7.1	18		7.54		3.73	4.14		15.2	16.3	17.4	18.5	19.5	20.3	21.5	22.7	23.3	24.3				convex sided bowl
575	2.1	2	4.1	5.4	6.1	7.1			8.32		5.04	3.35		15.2	16.3	17.3		19.11		21.4	22.13	23.3	24.3	25.1	26.3	27.4	externally projected rim
576	2.2	2	4.2	5.2	6.1	7.1	24		12.5		11.1	5.16	27.5	15.3	16.2	17.4	18.6		20.4		22.9	23.5	24.5				externally projected rim
577	2.1	2	4.1	5.1	6.1	7.1	9		5.61			4.15	7.25	15.2	16.3	17.4		19.28	20.4		22.11	23.1	24.3				externally projected
578	2.1	2	4.1	5.4	6.1	7.1	14		11.1		8.99	8.49		15.4	16.1	17.4		19.26	20.6		22.9	23.2	24.2				incurved rim
579	2.1	2	4.1	5.4	6.1	7.1	12		8.77		5.14	4.55		15.2	16.3	17.3	18.5	19.63		21.15	22.7	23.3	24.3	25.1	26.1	27.2	convex sided bowl
580	2.1	2	4.1	5.2	6.1	7.1	27		9.43	12		5.34		15.2	16.3	17.3		19.5	20.1		22.2	23.1	24.3				externally projected rim
581	2.1	2	4.1	5.4	6.1	7.1	17		8.77		5.57	4.21		15.1	16.3	17.3	18.1	19.5	20.4	21.5	22.11	23.3	24.3				convex sided bowl
582	2.1	2	4.1	5.4	6.1	7.1	13		7.21		6.4		3.48	15.2	16.3	17.4		19.28		21.13	22.11	23.4	24.4				concave sided bowl
583	2.1	2	4.1	5.1	6.1	7.1	13		9.58		5.59		14.3	15.2	16.3	17.3		19.5	20.4		22.11	23.5	24.3				beaked rim
584	2.1	2	4.1	5.4	6.1	7.1	13		7.83		6.25	4.78		15.2	16.3	17.3		19.26		21.9	22.7	23.3	24.3	25.1	26.1	27.4	concavo convex sided
585	2.7	2	4.5	5.1	6.1	7.1			14.1			8.77		15.4	16.2	17.4		19.26	20.3		22.7	23.2	24.2				beaked rim
586	2.2	2	4.2	5.1	6.1	7.1	12		8.84				14.2	15.1	16.3	17.3		19.28			22.6	23.5	24.3				externally projected rim
587	2.1	2	4.1	5.3	6.1	7.1	28		10		8.79	6.21	13.6	15.2	16.3	17.4	18.5	19.26	20.3	21.9	22.6	23.3	24.3				short beaked
588	2.3	2	4.3	5.3	6.1	7.1	18		8.29			5.07	14.6	15.2	16.3	17.4	18.5	19.26	20.3	21.9	22.6	23.3	24.3				externally projected
589	2.1	2	4.1	5.4	6.1	7.1	18		13.9		11.9			15.5	16.1	17.4		19.28	20.4	21.13	22.7	23.5	24.5				be3aked rim
591	2.3	2	4.3	5.4	6.1	7.1	19		7.8		7.03	3.41		15.1	16.3	17.4		19.26		21.9	22.11	23.3	24.3	25.1	26.1	27.2	straight sided bowl
592	2.2	2	4.2	5.1	6.1	7.1			12.9		6.69	7.37	26.1	15.2	16.3	17.4	18.5		20.3		22.6	23.5	24.5				beaked rim
593	2.1	2	4.1	5.3	6.1	7.1	25		11.1		11.9		24.1	15.2	16.3	17.4		19.52	20.1		22.7	23.5	24.3	25.1	26.1	27.4	externally projected
594	2.1	2	4.1	5.4	6.1	7.1	15		7.5		6.45	3.24		15.2	16.3	17.4		19.28	20.4	21.4	22.11	23.2	24.1				concavo convex sided
595	2.2	2	4.2	5.1	6.1	7.1	16		10.4					15.2	16.3	17.4	18.1	19.23	20.5	21.6	22.11	23.1	24.3				beaded rim
596	2.1	2	4.1	5.1	6.1	7.1	21		19				19.8	15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				extyernally projected
597	2.1	2	4.1	5.2	6.1	7.1	24		11.9		12.67	7.5		15.3	16.2	17.4	18.1		20.1		22.5	23.5	24.5				Bilateral projected
599	2.2	2	4.2	5.1	6.1	7.1	16		6.67		6.03	3.49		15.1	16.3	17.3	18.1	19.1	20.2	21.3	22.5	23.3	24.3	25.1	26.1	27.2	convex sided bowl

602	2.1	2	4.1	5.2	6.1	7.1	35		12.7		11.07	8.3	27.8	15.2	16.3	17.3	18.2	19.64	20.2	21.15	22.5	23.3	24.3				Bilateral projection,
604	2.1	2	4.1	5.4	6.1	7.1	18		9.59			4.76		15.2	16.3	17.4	18.1	19.5	20.4	21.5	22.11	23.3	24.3	25.1	26.1	27.4	convex sided internally
605	2.1	2	4.1	5.4	6.1	7.1			6.31		5.26	3.61		15.2	16.3	17.3		19.63		21.14	22.11	23.3	24.3				staright sided bowl
606	2.1	2	4.1	5.1	6.1	7.1	8		9.66		5.72	3.61	12	15.2	16.3	17.4		19.63	20.4		22.13	23.1	24.2				externlly projected beaded rim
607	2.1	2	4.1	5.1	6.1	7.1	14		8.82		6.38	3.61	18.9	15.2	16.3	17.4		19.28	20.6	21.13	22.11	23.1	24.3	25.1	26.1	27.4	everted rim
609	2.1	2	4.1	5.4	6.1	7.1	18		7.64		5.27	3.61		15.2	16.3	17.3		19.63		21.14	22.7	23.3	24.3				convex sided bowl
610	2.1	2	4.1	5.4	6.1	7.1	15		9.32		7.49	3.61		15.2	16.3	17.4	18.12	19.63	20.6	21.14		23.3	24.3				convex sided thick rim
611	2.1	2	4.1	5.1	6.1	7.1	14		12.2				29.9	15.4	16.2	17.4		19.26		21.13	22.13	23.2	24.2				everted rim
612	2.1	2	4.1	5.4	6.1	7.1	16		5.89		5.5	3.53		15.2	16.3	17.4	18.1		20.6		22.11	23.5	24.5				concavo convex sided
615	2.1	2	4.1	5.12	6.2	7.1					15.4			15.2	16.3	17.4	18.1		20.1		22.3	23.5	24.1				body portion with perforation
617	2.1	2	4.1	5.4	6.1	7.1	12		8.87		5.7	4.42		15.2	16.3	17.3		19.11		21.4	22.11	23.3	24.3				convex sided bowl
618	2.1	2	4.1	5.4	6.2	7.1				4	6.71			15.2	16.3	17.3		19.52	20.4	21.4	22.5	23.3	24.5	25.1	26.1	27.4	contiguous nflat
619	2.1	2	4.1	5.1	6.2	7.1		4		7	4.25			15.1	16.3	17.4	18.2		20.2		22.5	23.1	24.3				contoguous concave
620	2.1	2	4.1	5.4	6.1	7.1	14		7.44		6.17	4.48		15.2	16.3	17.4		19.11		21.5	22.7	23.5	24.3				straight sided bowl
621	2.1	2	4.1	5.1	6.2	7.1	18		11.2		7.79	6.03	14.1	15.2	16.3	17.4	18.5		20.3		22.6	23.5	24.5				short beaked
622	2.1	2	4.1	5.3	6.1	7.1	26		14.3		10		25.1	15.3	16.2	17.4		19.5		21.5	22.2	23.2	24.2				externally projected rim
624	2.1	2	4.1	5.3	6.1	7.1	20		11.7				31.6	15.3	16.2	17.4		19.63		21.15	22.13	23.2	24.2				externally projected rim
625	2.1	2	4.1	5.3	6.1	7.1	26		7.82		7.02	6.37		15.3	16.2	17.4		19.5		21.5	22.11	23.2	24.2	25.1	26.1	27.4	quadrangular rim
626	2.1	2	4.1	5.1	6.1	7.1	21		14		7.78			15.2	16.3	17.4	18.5		20.3		22.5	23.5	24.5				externally projected beaded
627	2.1	2	4.1	5.2	6.1	7.1	15		5.63			3.39		15.2	16.3	17.4		19.26		21.9	22.13	23.5	24.5				externally projected
628	2.1	2	4.1	5.4	6.1	7.1	19		11.2		7	6.73		15.1	16.3	17.3		19.1	20.3		22.13	23.5	24.3	25.1	26.3	27.4	convex sided bowl
629	2.1	2	4.1	5.4	6.1	7.1	13		6.83		3.65	3.68		15.2	16.3	17.3		19.5		21.5	22.2	23.2	24.5				straight sided bowl
630	2.1	2	4.1	5.2	6.1	7.1	20		13.3		8.56	4.85		15.2	16.3	17.3		19.5		21.5	22.7	23.3	24.3				slightly incurved
631	2.1	2	4.1	5.1	6.1	7.1	16		12.3					15.2	16.3	17.4	18.1	19.1	20.4	21.3	22.11	23.3	24.3				beaded rim
632	2.1	2	4.1	5.5	6.2	7.1		19		10				15.2	16.2	17.4		19.5	20.1		22.7	23.5	24.5				high pedestelled base
633	2.1	2	4.1	5.4	6.1	7.1	24		8.78		4.68	5.68		15.1	16.3	17.4		19.28		21.13	22.13	23.3	24.3				convex sided bowl

634	2.1	2	4.1	5.4	6.1	7.1	19		8.5		5.95	4.65		15.2	16.3	17.3		19.11		21.4	22.3	23.3	24.3				convex sided bowl
635	2.1	2	4.1	5.2	6.1	7.1			11.3		10.5	6.52		15.2	16.3	17.3	18.1	19.5	20.4	21.5	22.11	23.3	24.3				internally beaked rim
636	2.1	2	4.1	5.1	6.1	7.1	17		19.7					15.5	16.1	17.4		19.26		21.9	22.13	23.2	24.2				everted beaked rim
637	2.1	2	4.1	5.1	6.1	7.1	18		11.5		10.2	7.83	29	15.4	16.1	17.4	18.12		20.6		22.13	23.5	24.5				externally projected everted rim
638	2.7	2	4.1	5.1	6.1	7.1	13		11.1		6.26		13.4	15.2	16.3	17.4	18.1		20.1	21.3	22.2	23.1	24.3				short beaked rim
639	2.1	2	4.1	5.1	6.1	7.1	8		8.76					15.2	16.3	17.4	18.1	19.5	20.4		22.11	23.5	24.3				everted beaded rim
643	2.1	2	4.1	5.3	6.1	7.1			8.79		9.1	6.02	23.7	15.3	16.2	17.4	18.1	19.63	20.4		22.3	23.1	24.3				nternally beaked rim
646	2.1	2	4.1	5.1	6.2	7.1		6	7.75					15.3	16.2	17.4	18.5		20.3		22.5	23.5	24.5				noncontiguous discoid
647	2.2	2	4.2	5.1	6.1	7.1	14		11.1		6.6			15.2	16.3	17.4	18.12		20.6		22.13	23.1	24.1				everted beaded rim
648	2.6	2	4.1	5.1	6.1	7.1			11.7		6.29			15.2	16.3	17.3	18.1	19.63	20.4		22.11	23.5	24.3	25.1	26.1	27.4	beaked rim
649		2	4.1	5.1	6.1	7.1	9		5.95		4.56			15.2	16.3	17.4	18.1		20.4		22.11	23.5	24.5				short beaked rim
652	2.1	2	4.1	5.2	6.1	7.1	35		13.9		10.3	7.82		15.2	16.3	17.4	18.1	19.63	20.4	21.14	22.11	23.3	24.3				externally projected rim
653	2.7	2	4.5	5.1	6.1	7.1	25		13.8		12.69		30.3	15.4	16.2	17.4		19.52		21.15	22.13	23.5	24.5				externally projected
654	2.1	2	4.1	5.2	6.1	7.1	29		12.3		7.27	5.92	17.8	15.2	16.3	17.3		19.63		21.14	22.3	23.3	24.3				externally projected
655	2.1	2	4.1	5.4	6.1	7.1	26		9.75		6.51	5.44		15.2	16.3	17.3		19.63		21.14	22.13	23.3	24.3				convex sided bowl
656	2.1	2	4.1	5.1	6.1	7.1	31		10.1				20	15.2	16.3	17.3		19.5		21.5	22.7	23.3	24.3				short beaked rim, flat brim
657	2.1	2	4.1	5.1	6.1	7.1	11		12.3					15.2	16.3	17.4	18.1	19.26	20.4		22.11	23.1	24.2				beaded rim
658	2.1	2	4.1	5.2	6.1	7.1	30		6.58			5.23		15.2	16.3	17.4	18.1	19.28	20.4		22.13	23.5	24.2				externally projected
659	2.1	2	4.1	5.4	6.1	7.1	20		7.18		4.28	4.64		15.2	16.3	17.4	18.12			21.5	22.13	23.2	24.2				straight sided bowl
664	2.1	2	4.1	5.2	6.2	7.1				16	13.01			15.2	16.3	17.3	18.1		20.4	21.3	22.11	23.5	24.3				contiguous flat
666	2.3	2	4.3	5.4	6.2	7.1				4.4	6.21			15.1	16.3	17.3	18.6		20.4	21.9	22.9	23.3	24.5				contiguous flat
667	2.1	2	4.1	5.1	6.1	7.1	22		14.7			9.15	29	15.4	16.2	17.4		19.52		21.5	22.13	23.5	24.5				externaly projected
668	2.1	1	4.1	5.5	6.2	7.1		29		15		6.2		15.2	16.3	17.3		19.26	20.3		22.7	23.1	24.3				High pedestelled base,
669	2.1	2	4.1	5.4	6.1	7.1	16		8.01		5.61	4.37		15.3	16.2	17.4	18.5		20.3		22.11	23.5	24.5				convex sided bowl

671	2.7	2	4.1	5.1	6.1	7.1	15		8.36		6.13		13.9	15.2	16.3	17.3		19.26	20.3		22.7	23.5	24.3				externally projected
673	2.3	1	4.3	5.1	6.2	7.1		4		3.6	10.21			15.2	16.3	17.4	18.6		20.4		22.6	23.1	24.5				noncontiguous discoid
674	2.1	1	4.1	5.1	6.2	7.1		8		7.9	7.89			15.2	16.3	17.3		19.54	20.4		22.11	23.5	24.3				contiguous concave
675	2.1	1	4.1	5.1	6.1	7.1			8.63					15.2	16.3	17.3		19.26	20.4		22.11	23.5	24.3				externally projected
677	2.1	1	4.1	5.4	6.1	7.1	14		9.76		6.81	5.24		15.2	16.3	17.3		19.63		21.14	22.13	23.3	24.3				straight sided bowl
678	2.1	1	4.1	5.4	6.1	7.1	15		8.04		7.2	4.27		15.2	16.3	17.3		19.5		21.5	22.11	23.3	24.3	25.1	26.1	27.4	straight sided bowl
679	2.1	1	4.1	5.4	6.1	7.1	15		7.45			3.77		15.2	16.3	17.3		19.11		21.5	22.2	23.3	24.3				convex sided bowl
681	2.1	1	4.1	5.1	6.1	7.1	11		8.49			5.56	27	15.2	16.3	17.3	18.1			21.14	22.7	23.5	24.3				projected everted rim
685	2.1	1	4.1	5.1	6.1	7.1	11		5.11			3.67		15.2	16.3	17.3		19.5	20.4		22.11	23.1	24.3	25.1	26.1	27.4	externally projected
687	2.1	6	4.1	5.1	6.2	7.1				4.7	5.25			15.2	16.3	17.4	18.1		20.1		22.2	23.1	24.1				contiguous flat
688	2.1	1	4.1	5.1	6.1	7.1	10		8.21					15.2	16.3	17.4	18.1		20.4		22.11	23.2	24.2				beaded rim
690	2.1	6	4.1	5.4	6.1	7.1	19		7.08		7.73	5.25		15.2	16.3	17.3		19.5		21.5	22.3	23.3	24.3				convex sided bowl
691	2.1	6	4.1	5.3	6.1	7.1			8.97		6.6	5.48	21.5	15.3	16.2	17.4		19.23		21.7	22.5	23.5	24.5				Bilateral projection,
693	2.8	6	4.1	5.1	6.1	7.1			4.99			4.55		15.2	16.3	17.3	18.1	19.28	20.1	21.13	22.5	23.3	24.3				flaring rim,
694	2.1	6	4.1	5.2	6.1	7.1	16		5.72	6.7		3.59		15.2	16.3	17.3		19.26		21.9	22.11	23.3	24.2				contiguous base,
695	2.1	6	4.1	5.1	6.1	7.1	8		4.98			3.68	8.03	15.2	16.3	17.4		19.26		21.9	22.11	23.5	24.5				externally projected rim
696	2.1	6	4.1	5.2	6.1	7.1	27		9.15	12		5.79		15.2	16.3	17.3	18.5	19.63	20.3	21.14	22.7	23.3	24.3				contiguous concave
697	2.1	6	4.1	5.1	6.1	7.1	19		10.5			6.93		15.3	16.2	17.4		19.23		21.7	22.5	23.5	24.5				laring rim
698	2.1	6	4.1	5.1	6.1	7.1	11		10			7.16	11.8	15.2	16.3	17.3		19.28	20.6		22.11	23.1	24.3				short beaked
699	2.1 1	6	4.1	5.1	6.1	7.1			1176			6.79	22.2	15.4	16.2	17.4		19.26		21.13	22.13	23.5	24.5				beaked rim
700	2.1	6	4.1	5.1	6.2	7.1		5		7.8	7.7			15.2	16.3	17.3		19.63	20.6		22.13	23.5	24.5				noncontiguous discoid
701	2.2	6	4.2	5.1	6.2	7.1		8		12	7			15.2	16.3	17.3	18.1	19.26			22.13	23.1	24.3				contiguous flat
702	2.1 1	6	4.1	5.1	6.1	7.1	14		10.4		10.77	7.81		15.4	16.1	17.4		19.26		21.13	22.13	23.2	24.2				flaring rim,gritty surface
704	2.1	6	4.1	5.1	6.1	7.1	12		6.57			4.3		15.2	16.3	17.4		19.62	20.2		22.11	23.5	24.2				short beaked
706	2.1	6	4.1	5.1	6.1	7.1	15		9.27			4.73		15.4	16.2	17.4		19.63		21.15	22.13	23.2	24.2				flaring rim
708	2.1	6	4.1	5.1	6.1	7.1	7		4.71			4.58	6.92	15.1	16.3	17.2		19.11	20.1		22.11	23.5	24.3				externally projected

																											rim
709	2.1	6	4.1	5.1	6.1	7.1	9		7.03			4.82		15.2	16.3	17.3	18.1		20.4		22.6	23.5	24.3				externally projected rim
711	2.1	6	4.1	5.4	6.1	7.1	12		6.38		4.53	3.95		15.1	16.3	17.3		19.63		21.14	22.2	23.3	24.3				convex sided bowl
712	2.1	6	4.1	5.5	6.2	7.1		21		10				15.2	16.3	17.3		19.26	20.3		22.11	23.1	24.3				short pedestelled base
713	2.2	6	4.2	5.5	6.2	7.1					10.21			15.2	16.3	17.3	18.2	19.2	20.2	21.2	22.5	23.3	24.3				body portion, brocken
714	2.1	6	4.1	5.3	6.1	7.1	38		18.4		13.15		38.3	15.4	16.2	17.4		19.5		21.5	22.13	23.2	24.2				externally projected
715	2.2	6	4.2	5.1	6.1	7.1	13		9.4		5.6			15.2	16.3	17.3		19.28	20.3		22.5	23.1	24.3				beaded rim
718	2.1	6	4.1	5.1	6.1	7.1	10		8.48		9.41	6.4		15.4	16.2	17.4	18.1		20.4		22.13	23.5	24.5				flaring rim
719	2.1	6	4.1	5.3	6.1	7.1			9.51		6.11	6	27.6	15.3	16.2	17.4		19.5		21.7	22.13	23.5	24.2				ebeaked rim
720	2.2	6	4.2	5.5	6.2	7.1					4.51			15.2	16.3	17.4	18.5		20.3		22.6	23.5	24.5				joint of dish on stand
721	2.1	6	4.1	5.4	6.1	7.1	21		10.2		5.41	5.06	15.9	15.1	16.3	17.3		19.11	20.4		22.11	23.1	24.3				externally projected rim
722	2.1	6	4.1	5.1	6.1	7.1	15		8.25		6.5	4.47	20	15.2	16.3	17.2		19.1	20.6		22.11	23.5	24.3	25.1	26.1	27.2	short beaked
723	2.1	6	4.1	5.1	6.2	7.1		6		5.2	6.69			15.2	16.3	17.4	18.5		20.3		22.13	23.5	24.5				contiguous convex
724	2.1	6	4.1	5.1	6.1	7.1	18		13				33.9	15.5	16.1	17.4		19.26		21.13	22.13	23.2	24.2				externally projected
725	2.1	6	4.1	5.1	6.1	7.1	15		9.21			5.78	20	15.2	16.3	17.3	18.1	19.5	20.4	21.5	22.11	23.3	24.3	25.1	26.1	27.4	externally projected
726	2.1	6	4.1	5.1	6.1	7.1	22		15.2		8.9		29.2	15.3	16.2	17.4	18.5		20.3		22.11	23.1	24.1	25.1	26.1		beaked rim
728	2.2	6	4.2	5.1	6.2	7.1		6		7.2	10.24			15.2	16.3	17.4	18.6		20.2		22.5	23.5	24.5				contiguous concave
729	2.2	6	4.2	5.1	6.1	7.1	12		8.22		5.5		14.1	15.1	16.3	17.3	18.2	19.63	20.2		22.5	23.5	24.3				externally projected
731	2.11	6	4.1	5.4	6.1	7.1	14		11		8.96	7.25		15.5	16.1	17.4		19.64		21.15	22.13	23.2	24.2				incurved rim
732	2.2	6	4.2	5.1	6.1	7.1	7		5.09		3.73	3.72		15.2	16.3	17.4	18.12	19.64	20.6		22.13	23.1	24.5				externally projected rim
735	2.3	6	4.3	5.3	6.1	7.1	17		8.53		9.94	4.12	24.4	15.2	16.3	17.4	18.1		20.5		22.9	23.2	24.5				beaked rim,
736	2.11	6	4.4	5.1	6.1	7.1	12		5.26		4.86	3.78	10.1	15.2	16.3	17.3		19.28	20.4		22.11	23.5	24.3				externally projecteing
737	2.11	6	4.1	5.1	6.1	7.1			12.4					15.4	16.1	17.4		19.26		21.13	22.13	23.2	24.2				externally projected
738	2.6	6	4.2	5.1	6.1	7.1	14		10.9		5.62		13.6	15.1	16.3	17.3	18.2	19.28	20.2		22.5	23.1	24.3				beaked rim

739	2.1	6	4.1	5.4	6.1	7.1	21		15.9		8.57			15.3	16.2	17.4	18.1			21.15	22.2	23.5	24.5				beaked rim
740	2.1	6	4.1	5.4	6.1	7.1	12		8.41		6.68	3.69		15.2	16.3	17.4	18.1		20.4		22.2	23.1	24.1				straight sided bowl
743	2.1	6	4.1	5.1	6.2	7.1				10	10.13			15.2	16.3	17.4	18.1		20.3		22.7	23.1	24.1				contoguous flat
745	2.1	6	4.1	5.1	6.1	7.1	15		11.1				23.4	15.3	16.1	17.4		19.26		21.13	22.13	23.5	24.5				externally projected
746	2.1	6	4.1	5.1	6.1	7.1	25		12				34.7	15.2	16.3	17.4		19.26		21.13	22.11	23.2	24.2				beaked rim
747	2.1	6	4.1	5.2	6.1	7.1			9.43	7.5				15.3	16.2	17.4	18.12			21.5	22.13	23.2	24.2				internaly beaked rim
748	2.1	6	4.1	5.1	6.2	7.1		5		3.9	4.46			15.2	16.3	17.3	18.2	19.28	20.2		22.11	23.1	24.3				noncontiguous discoid
749	2.1	6	4.1	5.4	6.1	7.1	18		8.92		7.21	4.69		15.1	16.3	17.2		19.11		21.4	22.3	23.3	24.3	25.1	26.1	27.4	convex sided bowl
750	2.1	14	4.1	5.1	6.2	7.1		9		8.1	7.17			15.3	16.1	17.4	18.2		20.6		22.13	23.1	24.1				contiguous flat
751	2.1	6	4.1	5.1	6.1	7.1			7.78		4.78	4.74		15.2	16.3	17.4		19.5		21.5	22.11	23.2	24.2				externally projected
753	2.1	6	4.1	5.4	6.1	7.1	10		7.73		5.71			15.1	16.3	17.4	18.1	19.11	20.4	21.4	22.11	23.3	24.3				concavo convex bowl
756	2.1	6	4.1	5.1	6.1	7.1	19		11.4		13.52		27.3	15.4	16.1	17.4		19.28		21.13	22.13	23.2	24.2				externally projected
758	2.1 1		4.1	5.4	6.1	7.1	34		14.4		10.64		11	15.4	16.2	17.4	18.5	19.5	20.4	21.5	22.11	23.2	24.2	25.1	26.1	27.4	incurved rim,
759	2.1	17	4.1	5.1	6.1	7.1	16		9.45		7.52	6.11		15.2	16.3	17.4		19.5		21.13	22.11	23.5	24.2				externally projected
760	2.9	15	4.1	5.2	6.1	7.1	22		9.72		9.8	6	20.3	15.2	16.3	17.3		19.26		21.9	22.11	23.2	24.2				externally beaked rim
761	2.1	13	4.1	5.11	6.1	7.1	12		6.76		11.33	4.09		15.3	16.2	17.4		19.26		21.13	22.11	23.2	24.2				externally projected
762	2.1	14	4.1	5.2	6.1	7.1	14		5.26	7.1				15.2	16.3	17.4	18.5		20.3		22.7	23.1	24.1				externally projected rim
763	2.1	15	4.1	5.2	6.1	7.1	18		6.15	7.9		3.36		15.2	16.3	17.4		19.5		21.5	22.7	23.3	24.3	25.1	26.1	27.4	externally projected
764	2.1	16	4.1	5.1	6.2	7.1		2		3.8				15.2	16.3	17.4		19.63	20.4		22.11	23.1	24.3				non contiguous,narrow
765	2.1	14	4.1	5.3	6.1	7.1	40		9.66		10.92	6.27	22.8	15.2	16.3	17.4	18.5	19.1	20.3	21.3	22.6	23.3	24.3				bilateral projection,
766	2.1	14	4.3	5.1	6.1	7.1	12		6.23		4.8	3.3		15.1	16.3	17.4		19.63		21.14	22.11	23.3	24.2				beaked rim,elongated
767	2.1	13	4.1	5.4	6.1	7.1	22		7.58		8.63			15.3	16.2	17.4		19.26		21.9	22.11	23.2	24.2				incurved rim,
768	2.1	15	4.1	5.1	6.1	7.1	17		9.3		5.83	4.7	20.4	15.3	16.2	17.4	18.12	19.5	20.6		22.13	23.1	24.3				externally projected

769	2.1	15	4.1	5.1	6.2	7.1		4		7.5	4.11			15.2	16.3	17.4		19.62	20.6		22.13	23.1	24.3				noncontigupus discoid
770	2.8	15	4.1	5.1	6.1	7.1	20		15			9.21	31.8	15.2	16.3	17.4	18.5	19.5	20.3	21.5	22.11	23.3	24.3				externally projected
771	2.1	14	4.1	5.1	6.1	7.1	9		5.86		4.85		5.43	15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				externally projected
772	2.1	13	4.1	5.5	6.2	7.1		3		9.4		3.27		15.3	16.3	17.3	18.5	19.11	20.3		22.11	23.1	24.3	25.1	26.1	27.4	High pedestelled base
773	2.1	15	4.1	5.2	6.1	7.1	21		8.02		8.04		14	15.2	16.3	17.4	18.1		20.4		22.11	23.3	24.1				bilateral projection,
774	2.1	14	4.1	5.1	6.1	7.1	7		4.96		2.14	3.2		15.1	16.3	17.4	18.1		20.4		22.11	23.5	24.5				subrounded rim,
775	2.1	14	4.1	5.1	6.1	7.1	7		4.96		2.14	3.2		15.1	16.3	17.4	18.1		20.4		22.11	23.5	24.5				subrounded rim,
776	2.2	14	4.2	5.2	6.1	7.1	26		8.57		9.02	4.65	14.6	15.1	16.3	17.4		19.62		21.12	22.11	23.3	24.3				externally projected rim
777	2.3	11	4.3	5.5	6.2	7.1		27		10	9.99	6.95		15.1	16.3	17.4		19.62		21.12	22.5	23.5	24.5				High pedestelled
778	2.1	13	4.1	5.3	6.1	7.1	27		12.8		13.08			15.3	16.2	17.4		19.5		21.5	22.13	23.2	24.2				externally projected
779	2.6	6	4.1	5.4	6.1	7.1	20		9.2		6.88	4.76		15.1	16.3	17.4		19.63		21.7	22.13	23.2	24.3	25.1	26.1	27.4	convex sided rim
780	2.3	5	4.1	5.4	6.1	7.1			6.53		4.89	3.13		15.2	16.3	17.4	18.2		20.2		22.11	23.1	24.1				convex sided bowl
781	2.1	5	4.1	5.4	6.1	7.1	11		7.52		6.14	3.91		15.2	16.3	17.4		19.63		21.14	22.7	23.3	24.3	25.1	26.1	27.4	straight sided bowl
782	2.1	2	4.1	5.4	6.1	7.1	15		7.53		5.83	4.79		15.1	16.3	17.4		19.5	20.4		22.11	23.3	24.1				concavo convex sided
783	2.1	7	4.1	5.4	6.1	7.1	14		12.3		5.29		14.1	15.2	16.3	17.4		19.1		21.13	22.11	23.5	24.3				convex sided bowl
784	2.1	6	4.1	5.4	6.1	7.1	18		10.4		4.88	4.56	15.3	15.1	16.3	17.4		19.63	20.2		22.11	23.2	24.3				convex sided bowl
785	2.1	5	4.1	5.4	6.1	7.1	10		4.96		4.21	3.16		15.1	16.3	17.3		19.5		21.5	22.11	23.3	24.3	25.1	26.1	27.4	convex sided rim
787	2.1	2	4.1	5.4	6.1	7.1	14		8.26		6.47	4.11		15.3	16.2	17.4		19.11		21.13	22.7	23.1	24.1				convex sided bowl
790	2.1	2	4.1	5.4	6.1	7.1	15		7.48		6.76	3.42		15.1	16.3	17.3	18.1	19.63	20.2	21.14	22.11	23.3	24.3				convex sided bowl ,
791	2.1	2	4.1	5.4	6.1	7.1	13		6.44		5.29	2.68		15.1	16.4	17.4	18.12		20.6		22.13	23.1	24.1				straight sided bowl
792	2.6	2	4.1	5.4	6.1	7.1			5.15		2.9	2.51		15.1	16.3	17.4		19.5		21.5	22.13	23.3	24.3	25.1	26.1	27.4	convex sided bowl
793	2.1	2	4.1	5.4	6.1	7.1			7.6		5.91	2.8		15.1	16.3	17.4		19.1		21.3	22.13	23.3	24.3	25.1	26.1	27.2	convex sided bowl
794	2.8	8	4.1	5.4	6.1	7.1			11.5		7.13	4.85		15.2	16.3	17.4		19.26		21.7	22.5	23.3	24.3				convex sided bowl
795	2.1	6	4.1	5.4	6.1	7.1	9		5.87		4.83	4.11		15.2	16.3	17.4	18.12		20.6		22.13	23.1	24.1				convex sided bowl
796	2.2	8	4.2	5.4	6.1	7.1	16		8.93		8.34	3.88		15.2	16.3	17.4	18.5		20.3		22.6	23.1	24.1				convex sided bowl
797	2.1	6	4.1	5.4	6.1	7.1	8		5.8		4.82	2.79		15.2	16.3	17.4		19.1		21.3	22.11	23.3	24.3				convex sided bowl
798	2.1	7	4.1	5.4	6.1	7.1	15		9.91		6.45	3.8		15.2	16.3	17.4		19.5		21.5	22.11	23.3	24.3				straight sided bowl

799	2.1	11	4.1	5.4	6.1	7.1	8		10.8		5.11	4.12		15.2	16.3	17.4		19.63	20.6		22.11	23.5	24.2				convex sided bowl
800	2.1	8	4.1	5.4	6.1	7.1	14		8.32		8.9	4.72		15.3	16.2	17.4		19.5		21.5	22.11	23.2	24.2				convex sided bowl
801	2.1	6	4.1	5.4	6.1	7.1			8.93			2.71		15.1	16.3	17.4	18.2	19.63	20.4	21.14	22.11	23.3	24.3	25.1	26.1	27.4	convex sided bowl
802	2.7	7	4.5	5.4	6.1	7.1	10		6.35		3.75	3.7		15.4	16.2	17.4		19.26	20.3		22.9	23.2	24.3				concave sided bowl
803	2.8	14	4.1	5.3	6.1	7.3	33		7.32		9.64	5.22		15.4	16.2	17.4	18.12	19.5	20.6	21.5	22.13	23.2	24.2				externally projected
804	2.1	9	4.1	5.4	6.1	7.1	17		9.18		5.58	4.76		15.2	16.3	17.4	18.2	19.63	20.2		22.5	23.3	24.3				convex sided bowl
805	2.8	9	4.3	5.4	6.1	7.1	13		9.95		5.53	4.87		15.1	16.3	17.4	18.5	19.11		21.8	22.6	23.5	24.3				convex sided bowl
806	2.1	9	4.1	5.4	6.1	7.1			7.46		5.84	3.99		15.3	16.2	17.4		19.63		21.14	22.3	23.3	24.3	25.1	26.1	27.4	straight sided bowl
807	2.1	10	4.1	5.4	6.1	7.1	11		11.1		7.83	5.43		15.2	16.3	17.4		19.5		21.5	22.13	23.5	24.3				convex sided bowl
808	2.1	11	4.1	5.4	6.1	7.1	16		11.2		5.91	5.26		15.2	16.3	17.4		19.23		21.7	22.13	23.1	24.2				convex sided bowl
809	2.8	9	4.1	5.4	6.1	7.1	13		7.55		7.56	5.28		15.1	16.3	17.4		19.23		21.9	22.13	23.2	24.3				concavo convex sided
810	2.8	8	4.3	5.4	6.1	7.1	13		9.87		6.05	4.41		15.1	16.3	17.4		19.1		21.8	22.6	23.5	24.3				convex sided bowl
811	2.1	10	4.1	5.4	6.1	7.1	8		7.44		5.43	3.58		15.3	16.2	17.4		19.63		21.14	22.3	23.3	24.3	25.1	26.1	27.4	straight sided bowl
812	2.8	6	4.1	5.4	6.1	7.1	18		9.63		5.73	4.39		15.1	16.3	17.4		19.1	20.3		22.11	23.2	24.3				convex sided bowl
813	2.1	9	4.1	5.4	6.1	7.1			8.11		7.09	3.35		15.2	16.3	17.4		19.26		21.13	22.13	23.2	24.2				convex sided bowl
814	2.6	10	4.1	5.4	6.1	7.1	13		8.75	5.9	4.25			15.1	16.3	17.4		19.5		21.5	22.11	23.3	24.3	25.1	26.1	27.4	convex sided bowl
815	2.8	5	4.1	5.4	6.1	7.1	20		7.59		7.25	335		15.1	16.3	17.4		19.1		21.3	22.7	23.3	24.3				convex sided bowl
816	2.6	5	4.1	5.4	6.1	7.1			6.63		4.45	3		15.1	16.3	17.4		19.1		21.3	22.11	23.3	24.3	25.1	26.1	27.2	convex sided bowl
817	2.8	5	4.1	5.4	6.1	7.1			7.06		6.3	3.42		15.2	16.3	17.4		19.11		21.4	22.3	23.3	24.3	25.1	26.1	27.4	convex sided bowl ,
818	2.1	5	4.1	5.4	6.1	7.1	7		5.9		5.02	3.89		15.1	16.3	17.4		19.5		21.5	22.7	23.3	24.3	25.1	26.1	27.4	incurved rim
819	2.8	5	4.1	5.4	6.1	7.1	15		9.12		6.01	4.62		15.2	16.3	17.4	18.12	19.26	20.6		22.13	23.1	24.3				convex sided bowl
820	2.1	5	4.1	5.4	6.1	7.1	19		7.98		6.4	5.12		15.1	16.3	17.3		19.26		21.13	22.11	23.3	24.3				convex sided bowl
821	2.1	5	4.1	5.4	6.1	7.1	13		7.31		6.92	3.08		15.1	16.3	17.4		19.5		21.5	22.13	23.2	24.2				convex sided bowl
822	2.8	5	4.1	5.4	6.1	7.1	14		7.71		4.53	3.01		15.1	16.3	17.4	18.2			21.7	22.3	23.3	24.3	25.1	26.1	27.2	convex sided bowl
823	2.1	5	4.1	5.4	6.1	7.1	13		6.61		3.51	4.21		15.2	16.3	17.4		19.63		21.14	22.13	23.3	24.3				convex sided bowl
824	2.6	5	4.1	5.4	6.1	7.1	16		6.47		5.1	3		15.1	16.3	17.3		19.26		21.4	22.13	23.3	24.3	25.1	26.1	27.1	convex sided bowl
825	2.8	5	4.1	5.4	6.1	7.1	14		7.45		4.69	3.17		15.1	16.3	17.4	18.2	19.28		21.3	22.5	23.3	24.3	25.1	26.1	27.2	convex sided bowl
826	2.1	5	4.1	5.4	6.1	7.1	17		7.77		6.47	3.77		15.1	16.3	17.4		19.64		21.15	22.7	23.3	24.3				convex sided bowl
827	2.1	5	4.1	5.4	6.1	7.1	17		7.01		5.02	4.6		15.2	16.3	17.4	18.1			21.3	22.11	23.3	24.1	25.1	26.1	27.2	concavo convex sided

828	2.1	5	4.1	5.4	6.1	7.1	16		7.65		8.13	3.9		15.2	16.3	17.4	18.5		20.3		22.7	23.1	24.1	25.1	26.1	27.4	convex sided bowl
829	2.1	5	4.1	5.4	6.1	7.1	13		6.64		5.04	4.46		15.1	16.3	17.4		19.23		21.14	22.11	23.1	24.3	25.1	26.1	27.2	concavo convex sided
830	2.2	5	4.2	5.4	6.1	7.1			6.68		4.87	4.68		15.2	16.3	17.4		19.28		21.7	22.11	23.1	24.1				convex sided bowl
831	2.1	5	4.1	5.4	6.1	7.1	16		7.1		5.48	4.65		15.2	16.3	17.4		19.63	20.6	21.14	22.13	23.3	24.3				concavo convex sided
832	2.1	5	4.1	5.4	6.1	7.1	17		9.5		6.99	3.56		15.1	16.3	17.4		19.63		21.14	22.11	23.3	24.3				convex sided bowl
833	2.7	5	4.1	5.4	6.1	7.1	18		9.12		6.44	4.29		15.1	16.3	17.3		19.63		21.14	22.11	23.3	24.3				convex sided bowl
834	2.6	5	4.1	5.4	6.1	7.1	15		6.09		4.63	3.13		15.1	16.3	17.3		19.63		21.14	22.13	23.3	24.3				convex sided bowl
835	2.1	5	4.1	5.4	6.1	7.1	9c		5.35		4.95	3.7		15.2	16.3	17.4	18.5			21.9	22.7	23.3	24.1	25.1	26.1	27.4	convex sided bowl
836	2.1	5	4.1	5.4	6.1	7.1	12		8.1		7.12	4.15		15.2	16.3	17.4		19.26		21.9	22.13	23.2	24.2				convex sided bowl
837	2.2	17	4.2	5.2	6.1	7.1	18		8.24		7.83	4		15.2	16.3	17.4	18.2		20.2	21.1	22.5	23.3	24.1				bilateral projectedim
838	2.1	17	4.1	5.3	6.1	7.1	40		13.6		7.28	6.31	31.1	15.2	16.3	17.4	18.5	19.5	20.3	21.5	22.13	23.2	24.2				bilateral projectedim
839	2.3	17	4.3	5.3	6.1	7.1	27		10.6		7.24	5.31	27.3	15.1	16.3	17.4	18.6	19.62	20.4		22.13	23.2	24.2				bilateral projecteion
840	2.1	17	4.1	5.3	6.1	7.1			9.82		9.7	4.08	25.5	15.2	16.3	17.4	18.1	19.26	20.4	21.9	22.11	23.2	24.2				beaked rim,
841	2.11	17	4.1	5.3	6.1	7.3	28		9.84		8.55	6.99		15.4	16.2	17.4		19.26		21.9	22.11	23.2	24.2				externally projected rim
842	2.1	17	4.1	5.3	6.1	7.1	28		11.7		10.57		25.8	15.2	16.3	17.4	18.1	19.63	20.4	21.14	22.11	23.2	24.2				bilateral projected,
843	2.1	17	4.1	5.3	6.1	7.1	26		15.2		7.73			15.2	16.3	17.4	18.12	19.26		21.9	22.13	23.2	24.2				externally projected m
844	2.3	12	4.3	5.4	6.1	7.1	14		7.73		4.71	3.99	12.1	15.2	16.2	17.4	18.6		20.4		22.9	23.5	24.5				convex sided bowl
845	2.1	13	4.1	5.4	6.1	7.1	18		7.88		9.51			15.3	16.2	17.4	18.12			21.5	22.13	23.2	24.2				incurved rim
846	2.1	14	4.1	5.4	6.1	7.3	9		5.8		5.15	3.75		15.4	16.2	17.4		19.26		21.9	22.11	23.2	24.2				externally projected rim
847	2.1	14	4.1	5.4	6.1	7.1	16		10.3		9.41		6.61	15.3	16.2	17.4		19.63		21.14	22.5	23.3	24.3				incurved rim
848	2.1	14	4.1	5.4	6.1	7.1	10		6.78		6.17	3.97		15.3	16.2	17.4		19.26		21.13	22.11	23.2	24.2				incurved rim
849	2.1	12	4.1	5.3	6.1	7.1	18		18.6		8.48	4.84	18.1	15.3	16.2	17.4		19.5		21.5	22.5	23.2	24.2				externally projected rim,
850	2.3	13	4.3	5.4	6.1	7.1			7.09		5.87	3.77		15.2	16.3	17.4	18.6		20.4		22.11	23.5	24.5				externally projected rim
851	2.1	12	4.1	5.4	6.1	7.1	22		7.54		6.29	3.86		15.2	16.3	17.4		19.11		21.13	22.11	23.5	24.3				convex sided bowl
852	2.1	12	4.1	5.4	6.1	7.1	11		5.48		12.3	3.61	3.9	15.2	16.3	17.4		19.5		21.13	22.11	23.5	24.3				externally projected rim
853	2.1	11	4.1	5.4	6.1	7.1	13		9.88		5.42	6.22		15.2	16.3	17.4	18.1		20.4		22.11	23.5	24.5				convex sided bowl

854	2.1	10	4.1	5.4	6.1	7.1	20		8.83		4.72		14	15.2	16.3	17.4	18.12		20.4		22.13	23.5	24.1				externally projected rim
855	2.1	11	4.1	5.4	6.1	7.1	13		7.5		5.13	4.88		15.4	16.2	17.4		19.5		21.5	22.13	23.2	24.2				incurved rim
856	2.1	10	4.1	5.4	6.1	7.1	10		5.73		7.84	3.31		15.3	16.2	17.4	18.12			21.5	22.7	23.2	24.2				incurved rim
857	2.1	2	4.1	5.4	6.1	7.1	12		7.41		6.2	3.52		15.1	16.3	17.4		19.63		21.15	22.11	23.3	24.3				convex sided bowl
858	2.2	2	4.2	5.4	6.1	7.1	12		9.19		6.76	3.35		15.1	16.3	17.4		19.26		21.9	22.6	23.3	24.3				convex sided bowl
859	2.8	2	4.1	5.4	6.1	7.1	15		7.99		5.89	3.73		15.1	16.3	17.4		19.23		21.4	22.5	23.3	24.3				convex sided bowl
860	2.1	2	4.1	5.4	6.1	7.1			5.33		6.37	2.83		15.1	16.3	17.4	18.1			21.13	22.7	23.2	24.2				convex sided bowl
861	2.1	2	4.1	5.4	6.1	7.1	18		9.06		6.29	2.83		15.1	16.3	17.4		19.26		21.13	22.11	23.3	24.2				straight sided bowl
863	2.7	2	4.1	5.4	6.1	7.1			6.89		4.18	2.83		15.1	16.3	17.3		19.26		21.9	22.5	23.3	24.3	25.1	26.3	27.4	convex sided bowl
865	2.1	2	4.1	5.4	6.1	7.1	18		7.72		5.88	2.83		15.1	16.3	17.3		19.11		21.4	22.13	23.3	24.3				straight sided bowl
868	2.8	2	4.1	5.4	6.1	7.1	14		7.58		5.58	2.83		15.1	16.3	17.4	18.1	19.28	20.4	21.13	22.11	23.3	24.3	25.1	26.4	27.2	convex sided bowl
873	2.7	2	4.1	5.4	6.1	7.1	17		7.44		6.02	2.83		15.1	16.4	17.3	18.12	19.11	20.6	21.5	22.13	23.3	24.3	25.1	26.1	27.4	straight sided bowl
875	2.7	2	4.1	5.4	6.1	7.1	14		7.28		6.2	2.83		15.1	16.3	17.4		19.26		21.13	22.9	23.3	24.3				convex sided bowl
876	2.5	2	4.1	5.4	6.1	7.1	16		9.1		8.86	2.83		15.3	16.2	17.4	18.1		20.4		22.11	23.1	24.1				incurved rim
877	2.6	2	4.1	5.4	6.1	7.1	12		5.65		4.06	2.83		15.1	16.3	17.4		19.26		21.9	22.5	23.3	24.3	25.1	26.1	27.2	straight sided bowl
878	2.1	2	4.1	5.4	6.1	7.1	10		6.44		4.64	2.83		15.1	16.3	17.4		19.11		21.4	22.11	23.3	24.3				straight sided bowl
881	2.7	2	4.1	5.4	6.1	7.1			5.29		4.2	2.83		15.1	16.4	17.3	18.12	19.5		21.5	22.13	23.3	24.3				convex sided bowl
888	2.1	2	4.1	5.4	6.1	7.1	11		4.86		4.7	2.83		15.1	16.3	17.4		19.11		21.4	22.3	23.3	24.3				convex sided bowl
889	2.1	2	4.1	5.4	6.1	7.1	16		7.92		4.1	2.83		15.1	16.3	17.3		19.63		21.14	22.7	23.3	24.3				convex sided bowl
890	2.6	2	4.1	5.4	6.1	7.1	14		7.12		5.14	2.83		15.1	16.4	17.3		19.11		21.4	22.5	23.3	24.3	25.1	26.1	27.2	straight sided bowl
891	2.1	2	4.1	5.4	6.1	7.1	9		7.37		5.25	2.83		15.1	16.3	17.3		19.62		21.3	22.3	23.3	24.3	25.1	26.1	27.4	straight sided bowl
894	2.1	2	4.1	5.4	6.1	7.1			6.38		5.14	2.83		15.2	16.3	17.4		19.5		21.5	22.11	23.2	24.2				straight sided bowl
895	2.1	2	4.1	5.4	6.1	7.1	15		9.4		6.73	2.83		15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				convex sided bowl
896	2.1	2	4.1	5.4	6.1	7.1	15		6.72		6.04	3.97		15.2	16.3	17.4	18.1	19.5	20.4		22.11	23.1	24.3				concavo convex owl
897	2.1	2	4.1	5.4	6.1	7.1	9		9.34		7.01	3.71		15.2	16.3	17.4		19.11		21.4	22.3	23.2	24.2				straight sided bowl
898	2.1	2	4.1	5.4	6.1	7.1	10		7.57			3.25		15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				convex sided bowl
899	2.1	12	4.1	5.5	6.2	7.1		23		7.4	8.75			15.2	16.3	17.3		19.63	20.4		22.11	23.1	24.3				low pedestelled base
900	2.1	11	4.1	5.4	6.1	7.1	20		8.98		8.2	3.98		15.3	16.2	17.4		19.26		21.13	22.11	23.1	24.1				incurved rim
901	2.11	13	4.1	5.3	6.1	7.3	23		8.25		9.6	6.47		15.5	16.1	17.4		19.63		21.14	22.11	23.2	24.2				externally projected

902	2.1	15	4.1	5.3	6.1	7.1	26		9.16		9.83	4.32		15.3	16.2	17.4		19.26		21.9	22.11	23.2	24.2				externally projected
903	2.1	13	4.1	5.5	6.2	7.1		17		5.5	7.64	3.74		15.3	16.2	17.4	18.12		20.6		22.11	23.1	24.1				high pedestelled base,
904	2.1	16	4.1	5.1	6.2	7.1	5				5.26			15.2	16.3	17.4	18.1		20.4		22.11	23.1	24.1				Non contiguous,discoid
906	2.1	16	4.1	5.1	6.1	7.1	6		4.79			2.63		15.2	16.3	17.4	18.1	19.26	20.4	21.9	22.11	23.2	24.3				everted rim
907	2.1		4.1	5.1	6.2	7.1		5		16	5.91			15.2	16.3	17.4	18.1	19.26	20.4		22.11	23.2	24.3				noncontiguous discoid
908	2.1	5	4.1	5.4	6.1	7.1	11		5.44			3.43		15.1	16.3	17.4	18.1	19.63	20.4		22.11	23.3	24.3				convex sided bowl
909	2.8	5	4.1	5.4	6.1	7.1	20		8.09		4.78	3.3		15.1	16.3	17.3	18.5	19.63	20.3	21.14	22.6	23.3	24.3	25.1	26.1	27.2	convex sided bowl
910	2.1	5	4.1	5.4	6.1	7.1	13				4.69			15.2	16.3	17.4		19.63			22.7	23.3	24.3				convex sided bowl
911	2.1	5	4.1	5.4	6.1	7.1	7		7.12			2.83		15.2	16.3	17.3	18.1	19.11		21.4	22.11	23.3	24.3				convex sided bowl
912	2.1	5	4.1	5.4	6.1	7.1	10		7.34		5.2	2.71		15.2	16.2	17.4	18.1		20.1		22.2	23.2	24.1				convex sided bowl
913	2.7	2	4.1	5.4	6.1	7.1	11		7.13		4.53	3.44		15.2	16.3	17.3		19.5		21.5	22.11	23.3	24.3	25.1	26.1	27.4	convex sided bowl
914	2.1	10	4.1	5.3	6.1	7.1	14		9.23		7.63	4.93	17.4	15.2	16.3	17.4		19.11	20.6		22.11	23.3	24.3				bilateral projected
915	2.6	10	4.1	5.4	6.1	7.1	16		8.1		6.1	3.38		15.2	16.2	17.4		19.63		21.5	22.3	23.3	24.3	25.1	26.1	27.4	convex sided bowl
916	2.6	11	4.1	5.4	6.1	7.1	7		5.47		4.01	2.71	8.19	15.2	16.3	17.4		19.54		21.8	22.11	23.5	24.5	25.1	26.1	27.1	externally projected rim
917	2.1	10	4.1	5.4	6.1	7.1	14		8.2		7.84	4.86		15.4	16.2	17.4	18.11			21.15	22.13	23.2	24.2				incurved rim
918	2.2	11	4.2	5.3	6.1	7.1	10		6.97		5.21	2.57	13.3	15.2	16.3	17.3		19.28		21.8	22.6	23.5	24.3				externally projected rim
919	2.1	11	4.1	5.4	6.1	7.1	14		11.5		9.43	4.4		15.3	16.2	17.4		19.5		21.5	22.11	23.2	24.2				incurved rim
926	2.1	17	4.1	5.2	6.1	7.1	22		8.67			6.5		15.2	16.3	17.3	18.12	19.5	20.6	21.5	22.11	23.2	24.2				externally projected flaring
927	2.1	16	4.1	5.3	6.1	7.1	29		12.8		11.09	1		15.2	16.3	17.4	18.1		20.2		22.5	23.4	24.4				beaded rim
928	2.1	17	4.1	5.1	6.1	7.1			7.2		4.93	4.3	12.2	15.2	16.3	17.4	18.12		20.6		22.13	23.1	24.1				short beaked rim
929	2.1	15	4.1	5.1	6.1	7.1	16		10.4		10.22	5.25	23.6	15.3	16.2	17.4	18.1		20.4	21.5	22.11	23.1	24.1				everted rim
930	2.1	17	4.1	5.2	6.1	7.1	11		7.66		7.65		11.8	15.2	16.3	17.4		19.63		21.15	22.13	23.1	24.1				externally projected rim
931	2.1	16	4.1	5.3	6.1	7.1	24		9.33		10.5	4.79	28.6	15.2	16.3	17.4		19.26		21.13	22.11	23.2	24.1				bilateral projected,
932	2.1	17	4.1	5.1	6.1	7.1	22		11.5		8.18	4.65	27.1	15.3	16.2	17.4	18.1	19.5		21.13	22.11	23.2	24.4				beaked rim
616	2.1	2	4.1	5.1	6.1	7.1			12.8			9.25		15.4	16.2	17.4		19.26		21.9	22.13	23.2	24.2				externally projected

Appendix 3: Eo3 Worksheet.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1001	2.3	2	4.1	5.4	6.1	7.2	19		8.92		6.95	4.2		15.2	16.3	17.2	18.5	19.5	20	21.9	22.7	23.4	24.1	25.1	26	27.4	concave sided
1002	2.2	2	4.1	5.4	6.1	7.1	15		7.77		8.47	5		15.3	16.3	17.3		19.5		21.9	22.1	23.3	24.3	25.1	26.1	27.4	concave sided simple rim
1003	2.1	2	4.1	5.1	6.1	7.1	6		4.78		5.17	3.3		15.2	16.3	17.3		19.5		21.7	22.7	23.3	24.3				externally projected,
1004	2.9	2	4.1	5.1	6.1	7.1	16		10		11.72			15.3	16.2	17.4	18.8		20.4		22.1	23.2	24.2				externally projected
1005	2.1	2	4.1	5.3	6.1	7.1	6		5.21		3.73			15.1	16.3	17.3	18.1		20.5		22.1	23.4	24.4				externally projected
1006	2.1	2	4.1	5.4	6.1	7.1	18		8.63		6.57	4.7		15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.3	25.1	26.1	27.4	concave sided,simple rim
1007	2.1	2	4.1	5.1	6.1	7.1	17		10		8.87	8.4		15.4	16.2	17.4	18.9		20.4		22.1	23.2	24.2				externally projected rim
1008	2.1	2	4.1	5.4	6.1	7.1	11		5.58		5.85	4		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave convex sided
1009	2.3	2	4.4	5.5	6.2	7.1	12		10.2		7.18			15.1	16.3	17.3	18.6		20.4		22.9	23.5	24.3				beeked rim
1010	2.7	2	4.3	5.1	6.2	7.1		3		5.4	7.55			15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				
1011	2.1	2	4.1	5.1	6.1	7.1	9		6.42		4.45	4.9		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected
1012	2.1	2	4.1	5.2	6.1	7.1	14		11.2		5.76	6.4		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1013	2.9	2	4.1	5.1	6.1	7.3	12		10.4		8.93	6.4		15.5	16.2	17.4	18.1		20.6		22.1	23.2	24.2				externally projected
1014	2.1	2	4.1	5.4	6.1	7.1	12		6.67		4.09	4.9		15.1	16.3	17.3		19.6	20.4		22.1	23.3	24.3	25.1	26.1	27.4	concave sided
1015	2.2	2	4.1	5.1	6.1	7.1	18		13.8		4.27	10		15.1	16.3	17.3		19.6	20.4		22.1	23.3	24.3				sub rounded rim
1016	2.7	2	4.1	5.1	6.1	7.1	9		11.7		5.08	5.1		15.2	16.3	17.2		19.2	20.6		22.1	23.5	24.3				beeked rim
1017	2.1	2	4.1	5.4	6.2	7.1		10		7.5	5.29			15.2	16.3	17.3	18.9		20.4		22.1	23.5	24.2				
1018	2.2	2	4.1	5.4	6.1	7.1	16		10.8		8.28	5.1		15.2	16.3	17.3		19.5		21.7	22.1	23.5	24.3				concave convexbowl
1019	2.1	2	4.1	5.1	6.1	7.1	9		13.9		10.65	6.1		15.4	16.2	17.4		19.4		21.9	22.7	23.2	24.2				beaked rim
1020	2.1	2	4.1	5.4	6.1	7.1	12		9.45		7.9	4.5		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				concave convex sided
1021	2.1	2	4.1	5.4	6.1	7.1	11		9.08		6.81	3.1		15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.3				concave simple
1022	2.7	2	4.1	5.5	6.2	7.1		10		6.9		5		15.2	16.3	17.2		19.5		21.9	22.7	23.5	24.3				externally projected.
1023	2.8	2	4.1	5.1	6.1	7.1	12		8.58		5.65	4.3		15.2	16.3	17.3		19.5		21.9	22.1	23.2	24.2				beaked rim
1024	2.1	2	4.1	5.2	6.1	7.1	10		10.9		8.65	5.7		15.3	16.2	17.4		19.5		21.9	22.1	23.2	24.2				eternallyprojected,sin
1025	2.1	2	4.1	5.4	6.1	7.1	12		7.78		5.21	4.2		15.1	16.3	17.2		19.6		21.13	22.1	23.3	24.3				concave sided
1026	2.1	2	4.1	5.1	6.1	7.1	15		11.8		9.36	7.2		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected
1027	2.1	2	4.1	5.4	6.2	7.1		8		5.7	4.07			15.2	16.3	17.3	18.9		20.4		22.1	23.5	24.2				
1028	2.1	2	4.1	5.2	6.1	7.1	30		10.1		11.36	6.4		15.3	16.2	17.3		19.1		21.8	22.6	23.2	24.3				externally projected, rim

1029	2.1	2	4.1	5.1	6.1	7.1	16		13.2		9.1	6.9		15.3	16.2	17.3		19.2		21.5	22.1	23.2	24.2				extenally projected,flaring
1030	2.1	2	4.1	5.4	6.1	7.1	11		6.1		6.47	4		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3	25.1	26.1	27.4	concave sided simple
1031	2.1	2	4.1	5.4	6.2	7.1		4		4.8	4.89			15.2	16.3	17.3		19.1		21.4	22.7	23.3	24.3				
1032	2.1	2	4.1	5.1	6.2	7.1		6		4.5	6.3			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1033	2.1	2	4.1	5.3	6.1	7.1	20		8.07		3.53	5.8	22	15.2	16.3	17.3		19.5		21.9	22.4	23.3	24.3				externall projected,
1034	2.1	2	4.1	5.1	6.2	7.1	4			9.2	7.02			15.2	16.3	17.3		19.5		21.9	22.7	23.5	24.3				Pedestelled base
1035	2.1	2	4.1	5.1	6.1	7.1	25		13		7.3	4.8		15.3	16.2	17.3		19.2		21.5	22.7	23.3	24.3				externally projected beaked
1036	2.1	2	4.1	5.4	6.1	7.1			12.2		10.28			15.2	16.3	17.3		19.3		21.7	22.5	23.2	24.2				incurved rim
1037	2.1	2	4.1	5.4	6.1	7.1	16		10.2		8.74	2.8		15.2	16.3	17.3		19.5		21.9	22.4	23.3	24.3	25.1	26.1	27.4	concave sided
1038	2.8	2	4.1	5.1	6.1	7.1	8		6.06		6.36	4.2		15.1	16.3	17.2		19.6		21.14	22.1	23.3	24.3	25.1	26.1	27.4	externally projected
1039	2.9	2	4.1	5.1	6.1	7.1	15		11		10.09	5.5		15.2	16.3	17.4		19.6		21.11	22.8	23.3	24.3				externally projected
1040	2.2	2	4.2	5.3	6.1	7.1	16		8.81		6.07	6.8	26	15.2	16.3	17.2		19.6		21.12	22.1	23.2	24.3				bilaterally projecrted rim
1041	2.1	2	4.1	5.1	6.1	7.1	11		8.61		4.46			15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.3				externall projected flaring
1042	2.1	2	4.1	5.2	6.1	7.1	19		12		10.79	7		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally more projected
1043	2.8	2	4.1	5.1	6.1	7.1	11		8.24		5.29	3.7	14	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected
1044	2.1	2	4.1	5.4	6.1	7.1	10		9.24		7.1	4.1		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave sided
1045	2.1	2	4.1	5.4	6.1	7.1	18		7.31		4.59	4		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3	25.1	26.1	27.4	concaveoconvex
1046	2.1	2	4.1	5.4	6.1	7.1	15		7.64		5.41	2.6		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave sided
1047	2.1	2	4.1	5.1	6.1	7.1	16		12.9		9.08			15.5	16.2	17.4		19.6		21.13	22.1	23.5	24.5				externally projeted ,
1048	2.1	2	4.1	5.2	6.1	7.1	9		8.54		5.27	2.7		15.2	16.3	17.3		19.2		21.14	22.1	23.5	24.3	25.1	26.1	27.4	externally projected
1049	2.1	2	4.1	5.5	6.2	7.1		21		9.7				15.2	16.3	17.3		19.5	20.6		22.1	23.3	24.3	25.1	26.1	27.4	externally projected
1050	2.1	2	4.1	5.4	6.1	7.1	11		7.1		5.17	3.9		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				concave sided
1051	2.1	2	4.1	5.4	6.1	7.1	18		13		7.27			15.4	16.2	17.4		19.6		21.13	22.5	23.2	24.5				externally projected
1052	2.2	2	4.3	5.4	6.2	7.1		5		7.1	7.58			15.2	16.3	17.4	18.2		20.2		22.5	23.5	24.5				
1053	2.1	2	4.1	5.4	6.1	7.1	9		5.16		3.85	2.8		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave sided
1054	2.1	2	4.1	5.4	6.1	7.1	11		5.82		2.99	3		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3	25.1	26.1	27.3	concave sided
1055	2.1	2	4.1	5.3	6.1	7.1	14		12.2		7.88	7.4		15.4	16.2	17.4		19.3		21.6	22.5	23.5	24.5				externally more projected
1056	2.2	2	4.2	5.1	6.1	7.1	11		6.78		5.01			15.1	16.3	17.3		19.3		21.7		23.2	24.3				externally projected,
1057	2.1	2	4.1	5.4	6.1	7.1	16		9.92		7.18	5.3		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				concave sided
1058	2.1	2	4.1	5.5	6.2	7.1	10		8.35		4.69			15.2	16.3	17.3		19.5		21.9	22.7	23.5	24.3				externally projected,
1059	2.1	2	4.1	5.4	6.1	7.1	15		8.64		8.66	4.4		15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.5				concavoconvex sided

1060	2.9	2	4.1	5.1	6.1	7.1	16		9.49		9.62	7.2		15.3	16.2	17.4		19.6		21.13	22.7	23.5	24.5				beaked rim
1061	2.1	2	4.1	5.3	6.1	7.1	21		12.2		5.76	6.5	25	15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				externally more projected
1062	2.9	2	4.1	5.1	6.1	7.1	12		12.7		9.35	6.3		15.3	16.3	17.3		19.2		21.6	22.5	23.2	24.2				externally projected,
1063	2.8	2	4.1	5.4	6.1	7.1	15		9.96		5.3	3.9		15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				concave sided
1064	2.1	2	4.1	5.1	6.2	7.1	7			6.9	9.2			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1065	2.2	2	4.4	5.1	6.2	7.1		8		6.6	6.69			15.2	16.3	17.3		19.6		21.7	22.5	23.2	24.2				
1066	2.1	2	4.1	5.4	6.1	7.1	13		8.25		6.79	3.5		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave sided
1067	2.1	2	4.1	5.1	6.1	7.1	14		11.3		8.96		23	15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected
1068	2.7	2	4.1	5.4	6.1	7.1	11		5.76		4.26	2.1		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3	25.1	26.1	27.4	concave sided, thin
1069	2.8	2	4.1	5.1	6.1	7.1	16		13		5.18			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				externally projected,
1070	2.9	2	4.1	5.1	6.1	7.1	16		13.2		10.28	6.1	23	15.3	16.2	17.3		19.6		21.13	22.1	23.5	24.5				externally projected,
1071	2.9	2	4.1	5.1	6.1	7.1	15		11.3		12.52	7.7	31	15.3	16.3	17.3		19.5	20.3		22.7	23.5	24.5				externally projected
1072	2.7	2	4.1	5.4	6.1	7.1	14		8.77		7.75	3.7		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				concave soded rim
1073	2.1	2	4.1	5.1	6.1	7.2	15		11.3		7.69	8.1		15.5	16.2	17.4		19.6		21.14		23.5	24.2				externally projected rim
1074	2.1	2	4.2	5.3	6.1	7.1	31		14.3		8.67		19	15.2	16.3	17.3	18.5		20.2		22.1	23.3	24.3				externally projected rim
1075	2.7	2	4.1	5.4	6.1	7.1	18		8.97		7.86	5.1		15.2	16.3	17.3		19.6		21.14	22.4	23.3	24.3				concave sided rim
1076	2.8	2	4.1	5.1	6.2	7.1		7		4.3	8.82			15.2	16.3	17.4		19.6	20.2		22.5	23.5	24.3				
1077	2.1	2	4.1	5.1	6.2	7.1		6		8.2	6.96			15.2	16.3	17.3		19.6	20.5		22.1	23.5	24.3				
1078	2.1	2	4.1	5.1	6.1	7.1	19		11.1		13.61		22	15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.2				externally projected
1079	2.1	2	4.1	5.1	6.2	7.1		10		7.7	4.79			15.1	16.3	17.3	18.1		20.6		22.1	23.2	24.3				
1080	2.1	2	4.1	5.1	6.1	7.1	19		12.4		10.42		7.5	15.3	16.2	17.4		19.6		21.14	22.7	23.5	24.5				externally projected
1081	2.9	2	4.1	5.1	6.1	7.1	15		8.68		9.31	6.3		15.3	16.3	17.4		19.5		21.9	22.1	23.5	24.5				externally projected
1082	2.1	2	4.1	5.2	6.1	7.1	32		15.2		9.22		17	15.2	16.3	17.4		19.1		21.4	22.1	23.2	24.3				externally projected
1083	2.3	2	4.3	5.3	6.1	7.1	32		12.1		13.34	7	22	15.2	16.3	17.3	18.7		20.4		22.9	23.5	24.3				beaked
1084	2.1	2	4.1	5.4	6.1	7.1	14		13.7		11.18			15.4	16.1	17.4	18.8		20.4		22.1	23.2	24.2				incurved rim
1085	2.1	2	4.1	5.1	6.1	7.1	20		16.6		13.29	10		15.4	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected ,
1086	2.1	2	4.1	5.1	6.1	7.1	18		15.7		12.11			15.3	16.2	17.4		19.2		21.6	22.5	23.5	24.5				externally projected
1087	2.1	2	4.1	5.1	6.1	7.1	13		9.25		4.91	3.7	12	15.2	16.3	17.3		19.6		21.14	22.4	23.3	24.3	25.1	26.1	27.4	externally projected
1088	2.9	2	4.1	5.1	6.1	7.1	10		10.1		7.94	8.6		15.3	16.3	17.3		19.3		21.6	22.1	23.2	24.2				externally projected ,
1089	2.1	2	4.1	5.1	6.1	7.1	28		12.5		9.15		24	15.2	16.3	17.4		19.6		21.14	22.1	23.5	24.5				externally projected
1090	2.1	2	4.1	5.1	6.1	7.1	23		12.7		7.36	6.5		15.2	16.3	17.4	18.1	19.8	20.1		22.4	23.5	24.5				beaked
1091	2.1	2	4.1	5.1	6.1	7.1	12		10.7		9.52	6.6		15.3	16.2	17.4		19.6	20.6		22.1	23.3	24.3				short beaked

1092	2.1	2	4.1	5.2	6.1	7.1	27		10.6		10.44		23	15.1	16.3	17.3	18.1	19.6		21.14	22.1	23.3	24.3				externally more projected
1093	2.1	2	4.1	5.3	6.1	7.1	18		10.9		11.33	6		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally more projected
1094	2.1	2	4.4	5.3	6.1	7.1	27		13.8		11.02	6.4	22	15.2	16.3	17.3		19.3		21.7	22.1	23.3	24.3				externally more projected
1095	2.1	2	4.2	5.4	6.1	7.1	14		7.62		8.11			15.2	16.3	17.3		19.5		21.8	22.1	23.5	24.5				convave sided rim
1096	2.7	2	4.1	5.4	6.1	7.1	15		8.7		4.8	4.2		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				convave sided rim
1097	2.3	2	4.3	5.4	6.1	7.1	15		8.21		6.92	5.3		15.2	16.3	17.3		19.1		21.4	22.9	23.3	24.3				convave sided rim
1098	2.8	2	4.2	5.4	6.1	7.1	18		9.37		6.04	4		15.2	16.3	17.3		19.6		21.3	22.1	23.3	24.3				concave sided,
1099	2.1	2	4.1	5.1	6.1	7.1	14		9.85		12.38	3.5		15.3	16.2	17.3		19.6		21.13	22.1	23.5	24.5				beaked rim
1100	2.1	2	4.1	5.1	6.1	7.1	26		10.1		10.69	6.1		15.3	16.3	17.4		19		21.5	22.1	23.5	24.5				short beaked
1101	2.1	2	4.1	5.1	6.1	7.1	15		9.97		11.78	5.8		15.3	16.3	17.3	18.3		20.2		22.5	23.5	24.5				short beaked
1102	2.1	2	4.1	5.1	6.2	7.1		10		20	10.72			15.2	16.3	17.4		19.6		21.14	22.1	23.3	24.3				
1103	2.1	2	4.1	5.4	6.2	7.1		4		10	5.5			15.2	16.3	17.4		19.2		21.13	22.1	23.3	24.5				
1104	2.1	2	4.1	5.1	6.1	7.1	16		12.1		14.16	7		15.5	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected
1105	2.1	2	4.1	5.4	6.2	7.1		6		6	5.6			15.2	16.3	17.4		19.5		21.14	22.1	23.5	24.3				
1106	2.7	2	4.1	5.4	6.1	7.1	16		7.72		6.09	4.4		15.2	16.3	17.3		19.2		21.5	22.7	23.3	24.3	25.1	26.1	27.4	convave sided rim
1107	2.1	2	4.1	5.5	6.2	7.1	10		8.64		3.79			15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.2				
1108	2.1	2	4.1	5.1	6.1	7.1	11		7.29		7.26	7.7	11	15.2	16.3	17.3	18.8		20.4		22.1	23.5	24.3				under cut rim
1109	2.1	2	4.1	5.2	6.1	7.1	18		9.63		9.79	18		15.2	16.3	17.4		19.6		21.14	22.1	23.3	24.3				internally beaked rim
1110	2.1	2	4.1	5.1	6.2	7.1		6		6.3	6.61			15.2	16.3	17.4	18.9		20.4		22.1	23.5	24.5				
1111	2.7	2	4.1	5.4	6.1	7.1	10		7.9		3.82	3.9		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				convave sided rim
1112	2.7	2	4.1	5.1	6.1	7.1	8		6.36		5.25	6		15.1	16.3	17.3		19.5	20.6		22.1	23.5	24.3				externally projected
1113	2.1	2	4.1	5.1	6.1	7.1	13		11.4			5.6		15.4	16.2	17.4		19.6		21.13	22.1	23.5	24.5				externally projected
1114	2.1	2	4.1	5.1	6.2	7.1		7		9.4	12.59			15.2	16.3	17.3		19.6	20.4		22.1	23.5	24.3				
1115	2.1	2	4.1	5.1	6.1	7.1	20		19		18.39	14	39	15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3	25.1	26.1	27.4	externally projected
1116	2.1	2	4.1	5.4	6.1	7.1	8		4.91		5.26	3.9		15.2	16.3	17.3		19.5		21.13	22.1	23.5	24.3				concexsided rim
1117	2.7	2	4.1	5.4	6.1	7.1	17		7.31		5.94	3.7		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				straight sided
1118	2.9	2	4.1	5.1	6.1	7.1	16		13.3		9.28	5.5		15.4	16.2	17.4		19.2		21.6	22.5	23.5	24.5				externally projected rim,
1119	2.1	2	4.1	5.2	6.1	7.1	18		4.1		5.89		25	15.2	16.3	17.4		19.6		21.14	22.1	23.3	24.3				externally projected riim
1120	2.1	2	4.1	5.5	6.2	7.1		9		8.9	3.84			15.2	16.3	17.3		19.6		21.13	22.1	23.1	24.3				
1121	2.2	2	4.2	5.3	6.1	7.1	17		7.07		5.55	3.8	18	15.2	16.3	17.4		19.5		21.9	22.7	23.5	24.3				externally projected
1122	2.8	2	4.1	5.4	6.1	7.1	19		7.01		6.22	5		15.2	16.3	17.3		19.6		21.14	22.4	23.1	24.1				convex sided rim
1123	2.1	2	4.1	5.1	6.1	7.1	19		10.4		9.62	23		15.3	16.2	17.4		19.3		21.7	22.1	23.5	24.2				externally projected rim

1124	2.2	2	4.2	5.1	6.1	7.1	15		11.9		7.95	5.1		15.2	16.3	17.3		19.6	20.2		22.1	23.5	24.3	25.1	26.1	27.3	short beaked
1125	2.1	2	4.1	5.4	6.2	7.1		6		8.7	6.56			15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				
1126	2.1	2	4.1	5.1	6.2	7.1		8		7	5.44			15.2	16.3	17.3		19.5		21.7	22.5	23.5	24.3				
1127	2.1	2	4.1	5.2	6.1	7.1	22		15.2		12.61		20	15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.5				internally beaked rim
1128	2.1	2	4.1	5.2	6.1	7.1	14		10.3		11.69	6.8		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected ,
1129	2.2	2	4.2	5.3	6.1	7.1	16		14.6		10.04	8.6	30	15.2	16.3	17.3		19.6		21.12	22.1	23.2	24.2				internally beaked rim
1130	2.1	2	4.1	5.1	6.1	7.1	17		11.4		6.6	7.8	25	15.3	16.2	17.4		19.6		21.13	22.1	23.5	24.3				externally projected rim
1131	2.1	2	4.1	5.3	6.1	7.1	27		15.1		10.33	6.2	29	15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.5				externally more projected,
1132	2.1	2	4.1	5.1	6.1	7.1	22		12.6		11.43			15.5	16.2	17.4		19.2		21.5	22.1	23.2	24.2				externally projected ,
1133	2.8	2	4.2	5.4	6.1	7.1	26		7.38		5.3	5		15.2	16.3	17.3		19.2		21.6	22.5	23.3	24.3				concave sided rim
1134	2.1	2	4.1	5.4	6.1	7.1	20		7.55		4.29	2.9		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3	25.1	26.1	27.4	concave sided
1135	2.1	2	4.1	5.1	6.1	7.1	21		13.1		13.56	7.3		15.5	16.2	17.4		19.6		21.13	22.1	23.2	24.2				short beaked
1136	2.8	2	4.2	5.1	6.1	7.1	9		5.91		4.53	5.2		15.1	16.3	17.2		19.6		21.7	22.5	23.5	24.3				externally projected
1137	2.1	2	4.1	5.1	6.1	7.1	14		7.55		5.72	3.6	19	15.5	16.2	17.4		19.6		21.13	22.1	23.5	24.2				externally projected
1138	2.1	2	4.1	5.1	6.1	7.1	19		19.4		8.75			15.2	16.3	17.3		19.6		21.9	22.7	23.5	24.3				rounded rim
1139	2.7	2	4.1	5.4	6.1	7.1	11		6.27		4.8	3.1		15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3				concave sideded bowl
1140	2.1	2	4.1	5.1	6.1	7.1	19		17.8		8.33			15.2	16.3	17.3		19.6		21.9	22.7	23.5	24.5				rounded rim
1141	2.2	2	4.2	5.5	6.2	7.1		16		12	8.33	7.7		15.2	16.3	17.3		19.5		21.7	22.1	23.5	24.3				externally projected,
1142	2.7	2	4.1	5.4	6.1	7.1	18		7.78		5.73	3.4		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3	25.1	26.1	27.4	concave sided rim
1143	2.1	2	4.1	5.1	6.1	7.1	8		4.63		4.64			15.2	16.3	17.3		19.5		21.9	22.7	23.5	24.3				externally projected,
1144	2.1	2	4.1	5.4	6.2	7.1		6		8.5	7.05			15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				
1145	2.7	2	4.1	5.1	6.1	7.1	12		6.1		5.63	4.5		15.2	16.3	17.2		19.5		21.7	22.5	23.5	24.3				externally projected
1146	2.7	2	4.1	5.4	6.1	7.1	12		4.96		6	2.7		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave sided rim
1147	2.1	2	4.1	5.1	6.1	7.1	9		8.09		9.19	6.3		15.5	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim
1148	2.1	2	4.1	5.4	6.1	7.1	14		8.51		6.14	5.4		15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				concave sided, thick rim
1149	2.1	2	4.1	5.3	6.1	7.1	16		9.51		2.26	6.4		15.2	16.3	17.2		19.5		21.9	22.7	23.5	24.3				externally projected
1150	2.2	2	4.1	5.2	6.1	7.1	37		14.7		12.02	7.3	31	15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3	25.1	26.1	27.4	internally baeked rim
1151	2.1	2	4.1	5.4	6.2	7.1		5		5.8	4.67			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1152	2.1	2	4.1	5.1	6.1	7.1	15		13.5		9.36			15.3	16.2	17.4		19.3		21.7	22.1	23.2	24.2				externally projected rim
1153	2.1	2	4.1	5.1	6.1	7.1	13		11.2		7.67	4.4		15.2	16.3	17.3		19.2		21.5	22.5	23.3	24.3	25.1	26.1	27.4	beaked rim
1154	2.3	2	4.3	5.4	6.1	7.1	11		5.65		6.01			15.1	16.3	17.3		19.6		21.12	22.9	23.3	24.3				concave sided rim
1155	2.1	2	4.1	5.1	6.1	7.1	9		6.69		5.27	4.5		15.2	16.3	17.4		19.6		21.3	22.6	23.5	24.5				externally projected

1156	2.1	2	4.1	5.4	6.1	7.1	16		14.2		10.56			15.3	16.2	17.4		19.6		21.14	22.1	23.5	24.2				incurvwed rim
1157	2.1	2	4.1	5.1	6.1	7.1	12		8.3		8.22			15.2	16.3	17.3		19.6		21.11	22.1	23.5	24.5				externally projected rim
1158	2.2	2	4.1	5.4	6.1	7.1	17		8.76		7.11	5.2		15.2	16.3	17.3		19.2		21.5	22.7	23.3	24.3				concave sided thick rim
1159	2.1	2	4.1	5.1	6.1	7.1	6		5.73		4.52	4.1		15.2	16.3	17.3		19.5		21.9	22.1	23.5	24.3				beaked rim
1160	2.7	2	4.1	5.4	6.1	7.1	14		8.12		8.48	4		15.2	16.3	17.3		19.1		21.4	22.4	23.3	24.3				concave sided
1161	2.1	2	4.1	5.4	6.1	7.1	18		12.9		10.11			15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				incurvwed rim
1162	2.2	2	4.2	5.4	6.1	7.1	15		7.93		5.2	3.8		15.1	16.3	17.3		19.6		21.13	22.9	23.3	24.3				concave sided thick rim
1163	2.1	2	4.1	5.1	6.1	7.1	14		8		7.3	5.1		15.2	16.3	17.3		19.6		21.3	22.2	23.5	24.5				externally projected,
1164	2.8	2	4.2	5.4	6.1	7.1	12		8.45		5.95	3.3		15.1	16.3	17.2		19.6		21.11	22.5	23.3	24.3				concave sided,
1165	2.2	2	4.1	5.5	6.2	7.1		12		7.9	7.74	4.3		15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.3				
1166	2.1	2	4.1	5.1	6.1	7.1	8		5.41		4.99	3.6		15.2	16.3	17.2		19.2		21.5	22.7	23.3	24.3				externally projected
1167	2.1	2	4.1	5.1	6.1	7.1	14		7.3		6.63	4.9		15.3	16.3	17.4		19.5		21.9	22.7	23.2	24.2				externally projected
1168	2.1	2	4.1	5.1	6.1	7.1	20		14.3		14.7			15.5	16.2	17.4		19.6		21.13	22.1	23.5	24.5				extrnally projected
1169	2.8	2	4.1	5.1	6.1	7.1	10		6.21		5.15	3.1		15.1	16.3	17.3		19.6		21.3	22.1	23.5	24.3				extrnally projected
1170	2.1	2	4.1	5.1	6.1	7.1	6		3.14		3.54			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				extrnally projected
1171	2.1	2	4.1	5.1	6.2	7.1		6		12	8.2			15.3	16.2	17.4		19.6		21.13	22.1	23.5	24.5				
1172	2.7	2	4.1	5.4	6.1	7.1	12		6.21		4.3	3.8		15.2	16.3	17.1		19.6		21.14	22.1	23.3	24.3				concave sided bowl
1173	2.1	2	4.1	5.1	6.1	7.1	16		8.56		8.25	6.7	23	15.3	16.3	17.4		19.6		21.14	22.1	23.5	24.5				externally projected
1174	2.7	2	4.1	5.4	6.1	7.1	18		7.88		5.38	4.7		15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3	25.1	26.1	27.4	concave sided bowl
1175	2.1	2	4.1	5.4	6.2	7.1		4		9	7.77			15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				
1176	2.3	2	4.3	5.4	6.2	7.1		5		7	7.15			15.2	16.3	17.3		19.3		21.6	22.9	23.3	24.3				
1177	2.1	2	4.1	5.1	6.1	7.1	17		15.4		9.25		26	15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				baeaked rim
1178	2.7	2	4.1	5.4	6.2	7.1		3		5.5	6.11			15.2	16.3	17.3		19.5	20.4		22.1	23.3	24.5				
1179	2.1	2	4.1	5.1	6.1	7.1	16		12.1		5.96	9.7	15	15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.5				externally more projected
1180	2.1	2	4.1	5.1	6.1	7.1	12		11.7		9.18	7.2		15.3	16.2	17.3		19.5		21.9	22.7	23.5	24.5				externally projected
1181	2.1	2	4.1	5.5	6.2	7.1		13		6.4	5.67	3.2		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.5				externally projected
1182	2.8	2	4.2	5.1	6.1	7.1	9		5.37		5.2	3.9		15.2	16.3	17.2		19.6		21.12	22.9	23.5	24.3				baeaked rim
1183	2.1	2	4.1	5.3	6.1	7.1	12		9.53		6.51	5.1		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				externally projected
1184	2.2	2	4.2	5.1	6.1	7.1	9		5.48		3.58	4.1		15.1	16.3	17.2		19.5		21.8	22.6	23.5	24.3				externally projected
1185	2.1	2	4.1	5.3	6.1	7.1	14		8.55		7.85		8.9	15.3	16.2	17.4		19.8		21.3	22.7	23.2	24.2				externally projected
1186	2.1	2	4.1	5.1	6.2	7.1		4		3	5			15.3	16.2	17.4		19.6		21.14	22.1	23.5	24.5				externally projected
1187	2.1	2	4.1	5.1	6.1	7.1	13		10.1					15.3	16.2	17.4		19.6		21.14	22.7	23.2	24.2				externally projected rim

1188	2.2	2	4.1	5.1	6.2	7.1		6		7	8.97			15.2	16.3	17.3		19.6		21.12	22.9	23.5	24.3				
1189	2.1	2	4.1	5.1	6.1	7.1	18		12.9		10.32	5.5		15.3	16.3	17.4		19.6		21.14	22.1	23.2	24.2				externally projected,
1190	2.1	2	4.1	5.1	6.2	7.1		5		6.8	6.18			15.2	16.3	17.3		19.2		21.14	22.1	23.3	24.3				
1191	2.1	2	4.1	5.4	6.1	7.1	10		8.91		6.45	5	7.3	15.2	16.3	17.3		19.2		21.14	22.1	23.3	24.3				internally beaked rim
1192	2.1	2	4.1	5.1	6.1	7.1	10		8.58		10.06	22		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected
1193	2.1	2	4.1	5.4	6.1	7.1	12		6.97		6.81	4		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				concave sided
1194	2.8	2	4.1	5.1	6.1	7.1	13		9.87		5.53	4.8		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				short beaked
1195	2.1	2	4.1	5.4	6.1	7.1	13		9.28		7.51	5.5		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1196	2.1	2	4.1	5.1	6.1	7.1	14		10.5		10.33	5.5		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected
1197	2.1	2	4.1	5.1	6.1	7.1	22		16.7		6.87			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projeected
1198	2.1	2	4.1	5.1	6.1	7.1	17		11.3		11.68	8.2	29	15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected,
1199	2.2	2	4.2	5.4	6.2	7.1		6		4.9	5.43			15.2	16.3	17.3		19.1		21.4	22.7	23.3	24.3				
1200	2.1	2	4.1	5.1	6.2	7.1		4		6.2	7.62			15.1	16.3	17.3		19.6		21.13	22.1	23.5	24.2				
1201	2.1	2	4.1	5.1	6.1	7.1	7							15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1202	2.1	2	4.1	5.1	6.2	7.1		2		8.8	5.4			15.2	16.3	17.3		19.2		21.5	22.4	23.5	24.3				
1203	2.2	2	4.2	5.4	6.1	7.1	14		7.29		5.42	4		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.3				externally more projected
1204	2.1	2	4.1	5.1	6.1	7.1	16		10.5		5.43	5.3		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				externally more projected
1205	2.2	2	4.2	5.3	6.1	7.1	11		10.5		9.82	4.9		15.2	16.3	17.3		19.6		21.12	22.9	23.3	24.3				externally projectd,
1206	2.1	2	4.1	5.4	6.1	7.1	15		8.69		7.41	4.1		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				concave sided thick rim
1207	2.1	2	4.1	5.1	6.1	7.1	10		9.44		4.69			15.2	16.3	17.2		19.5		21.13	22.1	23.3	24.3				externally projected,
1208	2.1	2	4.1	5.1	6.1	7.1	14		10.9		8.23	7.4		15.5	16.2	17.4		19.6		21.13	22.6	23.2	24.2				externally projected
1209	2.1	2	4.1	5.1	6.1	7.1	14		10.9		7.57	6.6		15.5	16.2	17.4		19.6		21.13	22.6	23.2	24.2				externally projected
1210	2.7	2	4.1	5.4	6.1	7.1	20		7.66		5.6	4.5		15.2	16.3	17.2		19.5		21.9	22.1	23.3	24.3				concave sidede bowl
1211	2.1	2	4.1	5.1	6.2	7.1		7		9.5	7.14			15.3	16.3	17.4		19.6		21.13	22.1	23.5	24.5				
1212	2.3	2	4.3	5.1	6.2	7.1	20		16		10.83	7.3		15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.2				beaked rim
1213	2.1	2	4.1	5.1	6.2	7.1		4		7.8	7.61			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.2				
1214	2.1	2	4.1	5.1	6.2	7.1		4		6.8	4.76			15.2	16.3	17.3		19.5		21.13	22.1	23.5	24.3				
1215	2.1	2	4.1	5.1	6.1	7.1	11		10.2		8.09	7.7		15.3	16.2	17.4		19.6		21.13	22.6	23.2	24.2				externally projected rim
1216	2.1	2	4.2	5.5	6.2	7.1		22		8.8		4.6		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				pedestelled base
1217	2.2	2	4.2	5.4	6.1	7.1	12		7		6.89	3.5		15.2	16.3	17.3		19.4		21.7	22.5	23.3	24.3				concave sided
1218	2.1	2	4.1	5.1	6.1	7.1	16		12.7		11.65	8.3		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1219	2.1	2	4.1	5.1	6.1	7.1	14		10.8		8.78	6.3		15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.2				externally projected rim

1220	2.2	2	4.2	5.4	6.2	7.1		6		8.8	7.47			15.2	16.3	17.2		19.5		21.9	22.5	23.3	24.3				
1221	2.7	2	4.1	5.4	6.1	7.1	18		7.27		5.57	4		15.2	16.3	17.2		19.5		21.9	22.5	23.3	24.3				concave sided
1222	2.1	2	4.1	5.1	6.2	7.1		5		3.8	6.26			15.3	16.3	17.4		19.5		21.9	22.7	23.5	24.5				
1223	2.7	2	4.1	5.3	6.1	7.1	17		10.4		10.85			15.3	16.3	17.4		19.5		21.9	22.6	23.2	24.2				externally projected rim
1224	2.1	2	4.1	5.1	6.1	7.1	17		10.9		10.86	8.5		15.3	16.3	17.3		19.5		21.9	22.6	23.2	24.2				short baeked
1225	2.8	2	4.2	5.6	6.2	7.1		3		6.6	7.24			15.2	16.3	17.3		19.5		21.8	22.6	23.3	24.3				
1226	2.1	2	4.1	5.1	6.2	7.1		5		9.2	6.45			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1227	2.1	2	4.1	5.1	6.1	7.1	16		9.82		13.24	5.8	29	15.3	16.3	17.3		19.6		21.13	22.1	23.2	24.2				beaked
1228	2.1	2	4.1	5.4	6.1	7.1	28		9.03		9.01			15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.2				incurved rim
1229	2.2	2	4.1	5.3	6.1	7.1	46		9.55		10.73	6.6	29	15.2	16.3	17.2		19.6		21.14	22.1	23.2	24.3				internally beaked
1230	2.1	2	4.1	5.4	6.2	7.1		4		3.9	6.43			15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.3				
1231	2.3	2	4.3	5.1	6.1	7.1	9		5.73		3.32			15.1	16.3	17.2		19.4		21.12	22.9	23.3	24.3				short beaked
1232	2.1	2	4.1	5.1	6.1	7.1	10		7.03		5.98	4.7		15.3	16.2	17.4		19.2		21.7	22.5	23.2	24.2				externally projected rim
1233	2.1	2	4.1	5.4	6.1	7.1	12		8.23		7.26	4.8		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				internally beaked rim
1234	2.8	2	4.1	5.1	6.1	7.1	9		5.76		5.61	4.4		15.2	16.3	17.3		19.6		21.7	22.1	23.5	24.3				beaked rim
1235	2.7	2	4.1	5.4	6.1	7.1	17		7.8		6.06	4.1		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				intenally beaked rim
1236	2.1	2	4.1	5.1	6.1	7.1	14		7.01		5.98	5.6		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				short beaked
1237	2.8	2	4.1	5.1	6.1	7.1	16		10.4		11.35	5.1		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim
1238	2.1	2	4.1	5.3	6.1	7.1	18		10.3		9.48			15.3	16.2	17.3		19.2		21.5	22.1	23.2	24.2				externally projected rim
1239	2.1	2	4.1	5.1	6.1	7.1	16		9.66		10.96	7		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				flaring
1240	2.1	2	4.1	5.2	6.1	7.1	12		9.01		8.81		24	15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3				laring rim
1241	2.1	2	4.1	5.1	6.2	7.1		3		8	9.22			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1242	2.1	2	4.1	5.1	6.1	7.1	8		7.37		5.52			15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
1243	2.1	2	4.2	5.1	6.2	7.1		6		5.7	7.64			15.2	16.3	17.3		19.5		21.13	22.6	23.5	24.3				
1244	2.8	2	4.1	5.1	6.1	7.1	8		5.7		4.35	5		15.2	16.3	17.1		19.6		21.13	22.1	23.3	24.3				short beaked
1245	2.7	2	4.1	5.1	6.1	7.1	6		4.23		3.3			15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3				short beaked
1246	2.1	2	4.1	5.1	6.1	7.1	13		9.74		12.7	8.7		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected
1247	2.1	2	4.1	5.2	6.1	7.1	14		8.86		11.45	6.7	30	15.2	16.3	17.3		19.6		21.14	22.5	23.3	24.3				flaring rim
1248	2.1	2	4.1	5.1	6.1	7.1	20		11.9		9.25	6.5	31	15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				beaked rim
1249	2.1	2	4.1	5.4	6.1	7.1	22		14.4		11.54			15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				incurved rim
1250	2.1	2	4.1	5.1	6.1	7.1	15		14.5		9.52	8.2		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected
1251	2.1	2	4.1	5.1	6.1	7.1	15		11.5		15.17	7.9		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected

1252	2.1	2	4.1	5.1	6.1	7.1	8		5.18		4.08	3.8		15.2	16.3	17.3		19.2		21.13	22.1	23.2	24.3				beaked,elongeted neck
1253	2.1	2	4.1	5.4	6.2	7.1		4		6.2	5.28			15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				
1254	2.1	2	4.1	5.1	6.1	7.1	6		4.98		6.59	4		15.2	16.3	17.3		19.2		21.13	22.1	23.3	24.3				externally projected rim
1255	2.1	2	4.1	5.3	6.1	7.1	18		8.04		6.8	4.9	18	15.2	16.3	17.3		19.5		21.9	22.5	23.2	24.3				externally projected rim
1256	2.1	2	4.1	5.9	6.1	7.1	10		6.21	7.9				15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				incurved rim
1257	2.1	2	4.1	5.4	6.1	7.1	11		8.76		6.6		13	15.2	16.3	17.3		19.5		21.14	22.1	23.3	24.3				externally projected
1258	2.1	2	4.1	5.1	6.2	7.1		2		8.5	4.79			15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				
1259	2.1	2	4.1	5.1	6.1	7.1	15		11.2		8.46	6.7	12	15.3	16.2	17.3		19.2		21.5	22.6	23.2	24.3				externally projected
1260	2.1	2	4.1	5.1	6.1	7.1	9		6.48		7.31	4.1		15.2	16.3	17.4		19.6		21.13	22.1	23.2	24.2				externlly projected rim
1261	2.1	2	4.1	5.6	6.2	7.1		2		6.5	5.18			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1262	2.2	2	4.2	5.1	6.1	7.1	10		5.38		5.26			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.3				externally projected
1263	2.8	2	4.2	5.4	6.1	7.1	17		8.89		9.42	6.3		15.2	16.3	17.2		19.6		21.13	22.6	23.5	24.3				concave sided
1264	2.1	2	4.1	5.1	6.1	7.1	12		8.36		8.98	6.8		15.3	16.3	17.4		19.6		21.14	22.1	23.2	24.2				externally projected
1265	2.2	2	4.1	5.3	6.1	7.1	14		7.77		7.17	4.9		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				externally projected
1266	2.2	2	4.2	5.3	6.1	7.1			11.5		10.05	5.2		15.2	16.3	17.3		19.6		21.8	22.6	23.2	24.2				externally projected
1267	2.2	2	4.1	5.1	6.1	7.1	10		12.4		9.18	5.6		15.2	16.3	17.3		19.6		21.11	22.1	23.3	24.3				short beaked
1268	2.1	2	4.1	5.1	6.1	7.1	15		13.1		15.22	7.7		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected ,
1269	2.1	2	4.1	5.1	6.1	7.1	16		12.6		8.11	8.6		15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.2				externally projected
1270	2.7	2	4.1	5.4	6.1	7.1	10		5.71		4.94	4.8		15.2	16.3	17.1		19.2		21.5	22.1	23.3	24.3				externally projected
1271	2.7	2	4.1	5.1	6.1	7.1	15		11		14.06	6.6		15.3	16.2	17.4		19.6		21.13	22.1	23.5	24.2				externally projected ,
1272	2.1	2	4.1	5.1	6.2	7.1		6		5.2	5.37			15.2	16.3	17.4		19.6		21.13	22.1	23.5	24.5				
1273	2.1	2	4.1	5.1	6.1	7.1	18		12.6		12.97			15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.2				externally projected
1274	2.1	2	4.1	5.1	6.1	7.1	18		12.5		8.18	9.5	27	15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.2				externally projected
1275	2.1	2	4.1	5.1	6.1	7.1	20		10.7		12.83	5.5		15.3	16.3	17.3		19.2		21.5	22.1	23.2	24.2				externally projected ,
1276	2.1	2	4.1	5.2	6.1	7.1	14		10.7		8.93	8.1	20	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				internally baeaked rim
1277	2.1	2	4.1	5.1	6.1	7.1	25		12.1		8.11	6.8		15.3	16.2	17.3		19.2		21.5	22.1	23.2	24.2				externally projected rim
1278	2.2	2	4.1	5.1	6.2	7.1		8		8.5	5.51			15.2	16.3	17.4		19.2		21.13	22.1	23.2	24.3				
1279	2.1	2	4.1	5.1	6.1	7.1	14		8.36		8.98			15.3	16.3	17.4		19.6		21.13	22.1	23.2	24.2				externally projected
1280	2.1	2	4.1	5.3	6.1	7.1	18		16		11.72			15.3	16.2	17.3		19.6		21.8	22.1	23.2	24.2				externally projected
1281	2.1	2	4.1	5.1	6.1	7.1	18		13.8		13.68	6.9		15.3	16.2	17.3		19.6		21.14	22.1	23.2	24.2				externally projected rim
1282	2.1	2	4.1	5.1	6.1	7.1	17		11.9		8.81	8.3		15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
1283	2.1	2	4.1	5.1	6.2	7.1		5		6.9	7.74			15.3	16.3	17.3		19.6		21.14	22.1	23.5	24.3				ring base

1284	2.1	2	4.1	5.2	6.1	7.1	44		17.8		15.37	9.7	34	15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				internally beaked
1285	2.1	2	4.1	5.1	6.1	7.1	15		11.2		10.09	8.5		15.3	16.2	17.4		19.6		21.13	22.6	23.2	24.2				externally projected rim
1286	2.1	2	4.1	5.4	6.1	7.1	12		6.15		5.7	4.2		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				externally projected rim
1287	2.1	2	4.1	5.3	6.1	7.1	26		21.2		12.17		22	15.3	16.2	17.4		19.2		21.5	22.1	23.2	24.2				straight sided bowl
1288	2.1	2	4.1	5.1	6.2	7.1		6		2.9	4.77			15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.5				
1289	2.1	2	4.1	5.4	6.2	7.1		14	14.2		12.22			15.3	16.2	17.4		19.2		21.5	22.1	23.2	24.2				incurved rim
1290	2.8	2	4.1	5.1	6.1	7.1	15		9.16		6.84	5.8		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				externally projected rim
1291	2.2	2	4.2	5.4	6.1	7.1	17		9.18		5.47	4.5	14	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected rim
1292	2.1	2	4.2	5.1	6.2	7.1		4		5.3	4.24			15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.5				
1293	2.1	2	4.2	5.1	6.1	7.1	14		12		10.37	7.5		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
1294	2.1	2	4.1	5.1	6.1	7.1	15		11		6.7	7.4		15.2	16.2	17.3		19.6		21.14	22.5	23.2	24.2				externally projected rim
1295	2.8	2	4.1	5.4	6.1	7.1	16		9.42		8.26	5.5		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				concave sided bowl
1296	2.1	2	4.1	5.5	6.2	7.1		14		7.5		4.4		15.2	16.3	17.3		19.6		21.9	22.1	23.5	24.3				externally projected rim
1297	2.1	2	4.1	5.1	6.2	7.1		7	4.1		3.3			15.1	16.3	17.2		19.6		21.14	22.1	23.3	24.3				externally projected rim
1298	2.1	2	4.1	5.1	6.1	7.1	15		10.5		5.23			15.2	16.3	17.2		19.2		21.5	22.4	23.2	24.3				externally projected rim
1299	2.1	2	4.1	5.4	6.1	7.1	16		9.19		8.86	4.3		15.2	16.3	17.3		19.6		21.14	22.7	23.2	24.3				externally projected rim
1300	2.1	2	4.1	5.1	6.1	7.1	14		9.2		10.24	5.9		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				externally projected
1301	2.7	2	4.1	5.1	6.2	7.1	3			8.7	4.31			15.2	16.3	17.4		19.1		21.14	22.1	23.5	24.3				
1302	2.4	2	4.4	5.3	6.1	7.1	32		9.17		9.5	8.6	25	15.2	16.3	17.3		19.4		21.8	22.6	23.3	24.3				internally beaked
1303	2.1	2	4.1	5.1	6.2	7.1		3		14	6.76			15.2	16.3	17.4		19.6		21.13	22.1	23.5	24.3				
1304	2.1	2	4.1	5.1	6.2	7.1		3		7.2	8.54			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1305	2.4	2	4.4	5.3	6.1	7.1	16		11.8		10.33	6.1	25	15.2	16.3	17.3		19.5		21.8	22.6	23.5	24.5				bilateral projected
1306	2.1	2	4.1	5.1	6.1	7.1	20		10.9		12.85	6.9	26	15.3	16.2	17.4		19.3		21.7	22.9	23.2	24.2				externally projected rim
1307	2.1	2	4.1	5.4	6.1	7.1	22		15		13.41			15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				incurved rim
1308	2.1	2	4.1	5.1	6.1	7.1	14		13.2		8.96	8.1		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim
1309	2.1	2	4.1	5.2	6.1	7.1	17		9.44		6.43	5.3	12	15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3				externally projected rim
1310	2.4	2	4.4	5.3	6.1	7.1	20		12.2		9.47	6.3	24	15.2	16.3	17.4		19.6		21.12	22.1	23.3	24.3				bilateral projected
1311	2.4	2	4.4	5.1	6.1	7.1	10		5.48		5.16	4.9		15.1	16.3	17.3		19.6		21.12	22.5	23.5	24.3				externally projected rim,
1312	2.1	2	4.1	5.4	6.1	7.1	16		5.74		4.86	3.3		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				externally projected rim
1313	2.1	2	4.1	5.1	6.1	7.1	20		13.2		11.75	12		15.3	16.2	17.4		19.6		21.14	22.1	23.5	24.2				external;ly projected rim
1314	2.1	2	4.1	5.2	6.1	7.1	24		10.9		9.2	6.7	21	15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3				extenally projected rim
1315	2.1	2	4.1	5.1	6.1	7.1	13		7.06		6.61	8		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected rim

1316	2.8	2	4.2	5.4	6.1	7.1	16		10.6		7.15	6.3		15.2	16.3	17.2		19.6		21.12	22.9	23.5	24.3				concave sided bowl
1317	2.1	2	4.1	5.1	6.1	7.1	18		12.5		6.09	6.7		15.3	16.2	17.4		19.6		21.13	22.5	23.2	24.2				externally projected rim
1318	2.5	2	4.1	5.1	6.1	7.1	20		13		11.07	6.1		15.3	16.2	17.4		19.6		21.13	22.7	23.1	24.1				externally projected rim
1319	2.1	2	4.1	5.1	6.1	7.1	22		9.21		5.64	5.2		15.3	16.2	17.4		19.6		21.13	22.1	23.5	24.2				externally projected rim
1320	2.1	2	4.1	5.4	6.1	7.1	14		18.5		10.92	6.1	33	15.2	16.3	17.3		19.4		21.7	22.5	23.5	24.3				concave sided rim
1321	2.2	2	4.1	5.3	6.1	7.1	28		15.6		14.6	6.5	30	15.2	16.3	17.3		19.2		21.5	22.6	23.3	24.3				bilateral projected
1322	2.7	2	4.1	5.3	6.1	7.1	14		11.7		6.61	7.2		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1323	2.1	2	4.1	5.1	6.1	7.1	20		13.7		12.07	7.8		15.3	16.2	17.4		19		21.7	22.1	23.2	24.2				externally projected rim
1324	2.1	3	4.1	5.1	6.1	7.1	12		9.66		6.16	6.9		15.2	16.3	17.1		19.5		21.5	22.4	23.5	24.3	25.1	26.1	27.2	droping rim
1325	2.1	3	4.1	5.4	6.1	7.1	15		5.92		5.4	4.9		15.2	16.3	17.3		19.6		21.5	22.1	23.5	24.3				externally projected rim
1326	2.1	3	4.1	5.4	6.1	7.1	19		19.3		9.26		20	15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				incurved rim ,flate brim
1327	2.1	3	4.1	5.1	6.2	7.1	4			4.3	8.36			15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.3				
1328	2.1	3	4.1	5.3	6.1	7.1	13		10.2		10.66	6.1	24	15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected
1329	2.1	3	4.1	5.1	6.2	7.1		9		11	5.47			15.2	16.3	17.4		19.6		21.14	22.1	23.5	24.3				
1330	2.1	3	4.1	5.1	6.1	7.1	16		11.2		12.86	9.5		15.3	16.2	17.4		19.6		21.12	22.9	23.5	24.5				externally projected
1331	2.1	3	4.1	5.3	6.1	7.1	18		15.2		13.97	7.6		15.3	16.2	17.4		19.4		21.7	22.1	23.2	24.2				externally projected
1332	2.1	3	4.2	5.3	6.1	7.1	27		14.3		8.36	6.4	23	15.2	16.3	17.2		19.6		21.12	22.5	23.2	24.3				beaked rim
1333	2.1	3	4.1	5.1	6.1	7.1	22		14.5		14.43	7.2		15.3	16.2	17.4		19.2		21.5	22.7	23.2	24.2				externally projected
1334	2.1	3	4.1	5.1	6.1	7.1	15		9.67		5.66	5.2		15.2	16.3	17.3		19.6		21.13	22.5	23.3	24.3				externally projected rim
1335	2.1	3	4.1	5.1	6.1	7.1	15		11.9		10.61	6.3		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1336	2.5	3	4.1	5.3	6.1	7.1	28		15.9		12.63	11		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
1337	2.1	3	4.1	5.1	6.1	7.1	13		9.22		5.27	5.8	10	15.2	16.3	17.1		19.5		21.5	22.4	23.3	24.3	25.1	26.1	27.2	beaked rim
1338	2.1	3	4.1	5.4	6.2	7.1		4		4.1	4.23			15.2	16.3	17.2		19.6		21.13	22.7	23.3	24.3				
1339	2.1	3	4.1	5.4	6.1	7.1	8		7.12		4.61	6.8		15.2	16.2	17.3		19.6		21.14	22.1	23.2	24.2				concave sided rim
1340	2.1	3	4.1	5.1	6.1	7.1	12		10.8		11.71	5.6		15.3	16.2	17.4		19.6		21.12	22.9	23.2	24.2				externally projected rim
1341	2.8	3	4.1	5.1	6.1	7.1	16		10.5		9.55	5.7		15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3				externally projected,
1342	2.1	3	4.1	5.2	6.1	7.1	31		11.4			12	22	15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3	25.1	26.1	27.4	internally beaked
1343	2.1	3	4.1	5.1	6.2	7.1		6		5.3	8.72			15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				
1344	2.1	3	4.1	5.1	6.1	7.1	14		9.28		7.27	6.7		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.5				externally projected rim
1345	2.1	3	4.1	5.4	6.1	7.1	28		12.2		11.57			15.3	16.2	17.3		19.6		21.14	22.1	23.2	24.2				incurved rim
1346	2.1	3	4.1	5.1	6.1	7.1	17		12.6		7.37	6.6		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim
1347	2.1	3	4.1	5.1	6.1	7.1	16		11.8		12.44	7.8		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim

1348	2.1	3	4.1	5.1	6.1	7.1	9		9.23		8.19	6.4		15.3	16.2	17.4		19.6		21.14	22.1	23.5	24.5				externally projected rim
1349	2.1	3	4.1	5.1	6.1	7.1	12		9.9		9.69	6.8		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected, flaring
1350	2.1	3	4.1	5.4	6.1	7.1	18		15.4		11.05			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1351	2.1	3	4.1	5.2	6.1	7.1	16		10.1		9.1	4.5		15.2	16.3	17.3		19.3		21.7	22.5	23.2	24.2				short beaked
1352	2.1	3	4.1	5.4	6.1	7.1	18		9.15		6.41	4.4		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1353	2.1	3	4.1	5.1	6.1	7.1	12		10.8		10.2	7.3		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1354	2.4	3	4.4	5.1	6.2	7.1		5		9.2				15.2	16.3	17.3		19.6		21.12	22.9	23.5	24.5				
1355	2.1	3	4.1	5.5	6.2	7.1		14		8.6				15.2	16.3	17.3		19.2		21.5	22.1	23.5	24.3				externally projected rim
1356	2.3	3	4.3	5.4	6.1	7.1	16		7.42		6.91	3.6		15.1	16.3	17.2		19.6		21.11	22.9	23.3	24.3				concave sided bowl
1357	2.1	3	4.1	5.1	6.1	7.1	14		12.9		9.74	7.8		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1358	2.1	3	4.1	5.1	6.1	7.1	16		7.05		6.81	4.6		15.2	16.3	17.3		19.2		21.6	22.4	23.2	24.2				externally projected rim
1359	2.1	3	4.1	5.1	6.1	7.1	8		5.7		6.26	4.5		15.2	16.3	17.3		19.2		21.5	22.1	23.2	24.3				externally projected rim,
1360	2.1	3	4.1	5.4	6.1	7.1	30		12.9		12.86			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1361	2.1	3	4.1	5.1	6.2	7.1		3		4	7.36			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				
1362	2.1	3	4.1	5.1	6.1	7.1	8		5.13		3.84	2.5		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				externally projected rim,
1363	2.1	3	4.1	5.1	6.1	7.1	6		4.96		3.78	3.8		15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				externally projected rim
1364	2.1	3	4.1	5.1	6.1	7.1	8		6.47		4.74	3.9		15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				externally projected rim
1365	2.1	3	4.1	5.1	6.1	7.1	10		6.03		5.55	4.4		15.3	16.3	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
1366	2.1	3	4.1	5.1	6.1	7.1	19		8.21		5.36	5.4		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				externally projected
1367	2.1	3	4.1	5.1	6.1	7.1	12		9.97		7.73			15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1368	2.1	3	4.1	5.4	6.1	7.1	18		9.25		6.72	4.5	17	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected
1369	2.1	3	4.1	5.1	6.1	7.1	8		4.93		4.78	4.7		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected rim
1370	2.1	3	4.1	5.1	6.1	7.1	9		10.7		9.7	4.7		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1371	2.1	3	4.1	5.1	6.1	7.1	15		10.4		11.67	7.3	28	15.3	16.3	17.3		19.3		21.6	22.5	23.2	24.2				externally projected rim
1372	2.1	3	4.1	5.1	6.1	7.1	8		5.95		5.17	3.6		15.2	16.3	17.3		19.2		21.5	22.4	23.2	24.3				externally projected rim
1373	2.1	3	4.1	5.4	6.1	7.1	16		11.4		6.89	8.1		15.3	16.2	17.4		19.6		21.13	22.7	23.3	24.3				
1374	2.1	3	4.1	5.1	6.2	7.1		7		8.9	10.99			15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				
1375	2.1	3	4.1	5.1	6.2	7.1		4		8.5				15.2	16.3	17.3		19.2		21.14	22.1	23.5	24.3				
1376	2.1	3	4.1	5.3	6.1	7.1	26		12.1		10.78			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1377	2.1	3	4.1	5.4	6.1	7.1	20		12.6		11.75	5.2		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1378	2.1	3	4.1	5.1	6.1	7.1	14		11.4		9	8.1		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim

1379	2.1	3	4.1	5.1	6.2	7.1		4		7.9	3.75			15.2	16.3	17.2		19.6		21.14	22.1	23.5	24.5				
1380	2.8	3	4.1	5.1	6.1	7.1	9		8.8		7.13	4.1		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				short beaked rim
1381	2.1	3	4.1	5.4	6.1	7.1	15		6.7		6.16	4.7		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				convex sided bowl
1382	2.1	3	4.1	5.1	6.1	7.1	15		9.38		6.82	5.6		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				short beaked rim
1383	2.1	3	4.1	5.4	6.1	7.1	9		4.96		6.62	3.8		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				concave sided bowl
1384	2.1	3	4.1	5.1	6.1	7.1	14		10.5		10.28	6.3		15.3	16.3	17.3		19.6		21.14	22.1	23.2	24.2				externally projected rim
1385	2.4	3	4.4	5.1	6.1	7.1	15		9.47		6.76	6.7		15.2	16.3	17.3		19.6		21.12	22.9	23.3	24.3	25.1	26.1	27.2	externally projected rim
1386	2.1	3	4.1	5.4	6.1	7.1	11		8.87		7.85	5.1		15.2	16.3	17.3		19.6		21.13	22.7	23.3	24.3				concave sided bowl
1387	2.1	3	4.1	5.1	6.1	7.1	16		9.09		8.7	5.3		15.3	16.3	17.3		19.5		21.9	22.7	23.2	24.2				externally projected rim
1388	2.1	3	4.1	5.1	6.1	7.1	16		13.1		7.63	7.9		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1389	2.1	3	4.1	5.5	6.2	7.1	12		8.5		8.57	4.1		15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.3				externally projected rim
1390	2.1	3	4.1	5.1	6.1	7.1	10		6.25		4.08	4.4		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				short beaked
1391	2.7	3	4.1	5.5	6.2	7.1		15		9.2		4.9		15.2	16.3	17.2		19.6		21.14	22.1	23.5	24.3				externally projected rim
1392	2.1	3	4.1	5.4	6.1	7.1	12		12.2		10.08			15.3	16.2	17.3		19.6		21.14	22.1	23.2	24.2				incurved rim
1393	2.1	3	4.1	5.1	6.1	7.1	10		7.01		6.23	4.3		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.3				externally projected
1394	2.7	3	4.1	5.2	6.1	7.1	18		10.4		8.86		25	15.2	16.3	17.2		19.7		21.3	22.4	23.3	24.3				externally more projected
1395	2.1	3	4.1	5.4	6.1	7.1	15		10					15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1396	2.1	3	4.1	5.1	6.1	7.1	7		5.07		4.32			15.2	16.3	17.3		19.2		21.5	22.7	23.3	24.3				externally projected,
1397	2.1	3	4.1	5.1	6.1	7.1	14		15.3		10.33			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				rounded rim
1398	2.1	3	4.2	5.1	6.1	7.1	10		5.88		5.55	5.7		15.2	16.3	17.3		19.3		21.7	22.5	23.5	24.3				short beaked rim
1399	2.1	3	4.1	5.1	6.2	7.1		6		11	5.49			15.2	16.3	17.3		19.3		21.7	22.5	23.5	24.5				
1400	2.1	3	4.1	5.1	6.2	7.1		4			8.86			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				
1401	2.1	3	4.1	5.3	6.1	7.1	10		11.1		6.55	4.7		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1402	2.2	3	4.2	5.1	6.1	7.1	17		9.42		8.47	5.6		15.2	16.3	17.2		19.5		21.7	22.5	23.5	24.3				short beaked
1403	2.1	3	4.1	5.1	6.1	7.1	15		9.48			6.5		15.3	16.2	17.3		19.6		21.11	22.1	23.2	24.2				externally projected rim
1404	2.1	3	4.1	5.1	6.2	7.1		6		6.4	10.72			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				
1405	2.2	3	4.2	5.4	6.2	7.1		3			3.94			15.2	16.3	17.2		19.6		21.8	22.6	23.2	24.3				
1406	2.1	3	4.1	5.1	6.1	7.1	18		12.9		9.46	9		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1407	2.1	3	4.1	5.2	6.1	7.1	18		9.79		3.42			15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.3				externally more projected
1408	2.1	3	4.1	5.1	6.1	7.1	22		11.2		9.19	5.7		15.5	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1409	2.1	3	4.1	5.1	6.1	7.1	12		10.6		5.6	6.6		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1410	2.8	3	4.1	5.1	6.1	7.1	9		6.5		3.88	4.5		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				externally projected rim

1411	2.1	3	4.1	5.1	6.1	7.1	20		8.88		7.4	4.1		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				beaked rim
1412	2.8	3	4.1	5.1	6.1	7.1	15		10.9		11.15	5.7		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				beaked rim
1413	2.1	3	4.1	5.1	6.1	7.1	16		12.9		8.19	6.8		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1414	2.1	3	4.1	5.1	6.1	7.1	18		10.6		9.33	5.9		15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.2				incurved rim
1415	2.8	3	4.1	5.1	6.1	7.1	32		11.6		11.98	18	36	15.3	16.3	17.3		19.2		21.2	22.4	23.3	24.3				externally projected rim
1416	2.1	3	4.1	5.4	6.1	7.1	18		9.17		9.37	5.8	14	15.2	16.3	17.2		19.2		21.14	22.1	23.5	24.3				internally beaked rim
1417	2.2	3	4.1	5.5	6.2	7.1		24		7.8		4.6		15.2	16.3	17.3		19.2		21.5	22.1	23.5	24.3				externally projected rim
1418	2.7	3	4.1	5.4	6.1	7.1	15		7.82		4.82	4.5		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				concave sided bowl
1419	2.1	3	4.1	5.5	6.2	7.1		24		9.4	9.33	4.3		15.2	16.3	17.2		19.2		21.5	22.1	23.5	24.3				pedestelled base
1420	2.1	3	4.1	5.1	6.1	7.1	19		14.6		10.72			15.3	16.3	17.3		19.5		21.13	22.1	23.3	24.3				externally projected rim
1421	2.1	3	4.1	5.1	6.2	7.1		6		5.6	5.17			15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.3				
1422	2.7	3	4.1	5.1	6.1	7.1	12		8.88		6.93	5		15.2	16.3	17.2		19.9		21.3	22.1	23.3	24.3				externally projected
1423	2.1	3	4.1	5.1	6.1	7.1	12		10.6		9.4	8		15.3	16.3	17.3		19.6		21.13	22.4	23.5	24.3				externally projected rim
1424	2.1	3	4.1	5.1	6.2	7.1		4		4.5	4.59			15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.3				
1425	2.2	3	4.2	5.3	6.1	7.1	36		20.9		11.09	10	36	15.2	16.3	17.3		19.5		21.8	22.1	23.3	24.3				bilaterally projected rim
1426	2.1	3	4.1	5.1	6.2	7.1		7		8.2	8.3			15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.5				
1427	2.1	3	4.1	5.1	6.2	7.1		4		4.3	4.46			15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.3				
1428	2.8	3	4.1	5.1	6.2	7.1		8		6.8	8.07			15.3	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1429	2.1	3	4.1	5.4	6.1	7.1	12		6.11		4.89	3.4		15.2	16.3	17.2		19.2		21.5	22.4	23.1	24.3				concave sided bowl
1430	2.1	3	4.1	5.1	6.1	7.1	12		7.02		11.36	4.5		15.3	16.3	17.3		19.2		21.5	22.1	23.2	24.2				externally projected rim
1431	2.1	3	4.1	5.1	6.1	7.1	18		11.2		11.25	7.5	29	15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
1432	2.1	3	4.1	5.1	6.1	7.1	18		8.07		6.21	6.1		15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.3				externally projected rim
1433	2.1	3	4.1	5.1	6.2	7.1		8		11	8.69			15.3	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1434	2.1	3	4.1	5.1	6.1	7.1	31		13.5		12.67	8.1		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected,
1435	2.7	3	4.1	5.4	6.1	7.1	31		10.8		8.79	7.1		15.2	16.3	17.2		19.1		21.4	22.7	23.3	24.3				externally projected,
1436	2.3	3	4.3	5.1	6.1	7.1	12		5.75		4.9	3.5		15.2	16.3	17.2		19.6		21.12	22.9	23.5	24.3				externally projected rim
1437	2.1	3	4.1	5.1	6.1	7.1	15		11.1		9.58	5.1		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected,
1438	2.2	3	4.1	5.1	6.1	7.1	24		17.9		16.4	10	36	15.2	16.3	17.2		19.4		21.7	22.1	23.3	24.3				externally projected
1439	2.8	3	4.1	5.1	6.1	7.1	16		8.71		5.79	4.5		15.2	16.3	17.2		19.3		21.7	22.5	23.3	24.5				short beaked rim
1440	2.1	3	4.1	5.4	6.1	7.1	17		14.4		12.14			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1441	2.1	3	4.1	5.1	6.1	7.1	18		12.6		9.96			15.3	16.3	17.2		19.2		21.6	22.1	23.2	24.2				externally projected rim
1442	2.2	3	4.1	5.1	6.2	7.1		6		5.2	4.96			15.2	16.3	17.2		19.6		21.7	22.5	23.2	24.3				

1443	2.7	3	4.1	5.1	6.1	7.1	14		8.48		5.39	6.2		15.2	16.3	17.3		19.4		21.7	22.5	23.5	24.3				short beaked rim
1444	2.1	3	4.1	5.3	6.1	7.1	20		8.45		11.41	5.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1445	2.1	3	4.1	5.1	6.1	7.1	33		13		9.52			15.3	16.3	17.3		19.5		21.9	22.5	23.2	24.2				drooping rim
1446	2.1	3	4.1	5.4	6.1	7.1	15		7.85		6.06	6.6		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1447	2.1	3	4.1	5.1	6.1	7.1	15		8.79		8.88	6.6		15.2	16.2	17.3		19.6		21.13	22.7	23.2	24.2				flaring rim
1448	2.8	3	4.1	5.2	6.1	7.1	23		10.9		7.87		19	15.2	16.3	17.2		19.5		21.9	22.1	23.3	24.3	25.1	26.1	27.4	intrernally beaked rim
1449	2.1	3	4.1	5.1	6.1	7.1	9		9.37		6.47	5.9		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1450	2.1	3	4.1	5.1	6.1	7.1	26		12.8		12.16			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				flaring rim
1451	2.1	3	4.1	5.1	6.1	7.1	12		7.78		8.93	5.1		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected rim
1452	2.3	3	4.3	5.5	6.2	7.1		22		14	14.52			15.2	16.3	17.3		19.6		21.12	22.9	23.3	24.3				raised base
1453	2.1	3	4.1	5.1	6.1	7.1	26		11.6		8.67			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1454	2.1	3	4.1	5.4	6.1	7.1	14		13.5		12.03	7.4		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1455	2.1	3	4.1	5.1	6.1	7.1	20		10.9		8.11	6		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1456	2.1	3	4.1	5.1	6.1	7.1	18		10.6		8.57	7.7		15.2	16.3	17.3		19.6		21.13	22.6	23.5	24.3				externally projected rim
1457	2.1	3	4.1	5.4	6.1	7.1	16		10.3		11.6			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1458	2.1	3	4.1	5.4	6.1	7.1	18		20.1		11.12			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim, thick
1459	2.8	3	4.1	5.1	6.1	7.1	18		12		8.58	5.5		15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3	25.1	26.1	27.2	externally projected rim
1460	2.1	3	4.1	5.1	6.1	7.1	14				9.24	5.3		15.3	16.3	17.3		19.6		21.13	22.7	23.5	24.5				externally projected rim
1461	2.1	3	4.1	5.1	6.1	7.1	12		8.97		5.92	7		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				sub rounded rim
1462	2.1	3	4.1	5.1	6.1	7.1	12		10.5		12.52			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1463	2.1	3	4.1	5.4	6.1	7.1	15		9.43		4.73	5.5		15.3	16.2	17.3		19.2		21.5	22.7	23.2	24.2				incurved rim
1464	2.1	3	4.1	5.1	6.2	7.1		6		11	5.44			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1465	2.1	3	4.1	5.1	6.1	7.1	16		13.5		10.07			15.5	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected flaring
1466	2.1	3	4.1	5.3	6.1	7.1	15		10.3		7.2	8.3		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1467	2.1	3	4.4	5.1	6.1	7.1	14		7.56		5.51	4.7		15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.3	25.1	26.1	27.1	short beaked
1468	2.1	3	4.1	5.1	6.2	7.1		6		8.6	4.53			15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.3				
1469	2.1	3	4.1	5.1	6.1	7.1	18		12.6		10.61	9.4		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1470	2.1	3	4.1	5.1	6.1	7.1	9		3.98		3.98	3.6		15.2	16.3	17.3		19.6		21.13	22.5	23.3	24.3	25.1	26.1	27.2	flaring out rim
1471	2.1	3	4.1	5.4	6.1	7.1	15		13.1		11.73			15.3	16.2	17.4		19.2		21.6	22.5	23.2	24.2				incurved rim
1472	2.8	3	4.4	5.1	6.2	7.1		3		5.2	6.99			15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.3				
1473	2.1	3	4.1	5.4	6.1	7.1	10		14.2		9			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1474	2.1	3	4.1	5.1	6.1	7.1	18		11.6		11.82	6.8		15.4	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim

1475	2.1	3	4.1	5.1	6.1	7.1	17		10		10.44	8.9		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1476	2.1	3	4.1	5.4	6.1	7.1	13		4.76		5.27	3.9	13	15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally more projected
1477	2.1	3	4.1	5.1	6.1	7.1	12		5.88		3.05			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				beaked rim,
1478	2.8	3	4.1	5.1	6.2	7.1		4		5.3	8.25			15.2	16.3	17.3		19.6		21.13	22.5	23.3	24.3				
1479	2.7	3	4.1	5.2	6.1	7.1	10		4.96		5.55	2.6	10	15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.3	25.1	26.1	27.4	internally beaked rim
1480	2.1	3	4.1	5.1	6.2	7.1		5		7	5.58			15.2	16.2	17.4		19.5		21.9	22.7	23.2	24.5				
1481	2.1	3	4.1	5.1	6.1	7.1	10		7.15		8.24	6.6		15.3	16.2	17.3		19.5		21.9	22.7	23.3	24.3				externally projectyed rim
1482	2.1	3	4.1	5.4	6.1	7.1	14		19.8		9.27			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved thick rim
1483	2.1	3	4.1	5.1	6.1	7.1	15		10.1		9.32	7.8		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected,
1484	2.8	3	4.1	5.2	6.1	7.1	16		10.7		6.9	5.7		15.2	16.3	17.2		19.6		21.11	22.6	23.3	24.3				internally beaked rim
1485	2.1	3	4.1	5.1	6.1	7.1	19		9.92		6.61	4.9		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				short beaked rim
1486	2.1	3	4.1	5.1	6.2	7.1		4		4.9	7.43			15.2	16.3	17.2		19.2		21.9	22.7	23.5	24.3				
1487	2.1	4	4.1	5.3	6.1	7.1	38		14.3		11.41			15.3	16.2	17.4		19.2		21.5	22.7	23.2	24.3				externally projected rim
1488	2.1	4	4.1	5.1	6.1	7.1		6		2.5	4.58			15.2	16.2	17.3		19.6		21.13	22.1	23.5	24.3				
1489	2.1	4	4.1	5.2	6.1	7.1	26		13.3		10.11	10	14	15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3				internally beaked rim
1490	2.1	4	4.1	5.5	6.2	7.1		18		9.9	7.79	7.4		15.2	16.3	17.3		19.2		21.13	22.1	23.5	24.3				pedestelled base
1491	2.2	4	4.4	5.2	6.1	7.1	16		12		12.01	5.6		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				externally projected rim
1492	2.1	4	4.1	5.1	6.1	7.1	15		10.2		7.41	6.8		15.3	16.2	17.4		19.6		21.13	22.7	23.3	24.3				externally projected rim
1493	2.1	4	4.1	5.1	6.1	7.1	12		8.6		6.83	5		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3	25.1	26.1	27.4	short beaked
1494	2.1	4	4.1	5.4	6.1	7.1	15		7.47		5.15	6.7		15.2	16.3	17.2		19.2		21.5	22.4	23.3	24.3				concve sided rim
1495	2.1	4	4.1	5.3	6.1	7.1	10		9.45		9.26	6.1	9.7	15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected rim
1496	2.1	4	4.1	5.1	6.1	7.1	23		9.86		9.36	7.2		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1497	2.1	4	4.1	5.1	6.1	7.1	17		12		7.49	7.3		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim
1498	2.1	4	4.1	5.5	6.2	7.1		14		7.8	7.35	6.1		15.2	16.3	17.3		19.2		21.5	22.5	23.5	24.3				pedestelled base
1499	2.1	4	4.2	5.1	6.1	7.1	15		9.26		6.8	5.5		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1500	2.1	4	4.1	5.1	6.1	7.1	22		12.8		12.56			15.3	16.3	17.4		19.6		21.11	22.1	23.3	24.3				externally projected rim
1501	2.1	4	4.1	5.4	6.1	7.1	26		13.9		8.47			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.3				incurved rim
1502	2.1	4	4.1	5.4	6.1	7.1	15		11.9		8.35			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1503	2.8	4	4.1	5.1	6.1	7.1	15		9.7		6.7	5.8		15.2	16.3	17.2		19.1		21.13	22.1	23.5	24.3	25.1	26.1	27.2	externally projected rim
1504	2.1	4	4.1	5.1	6.1	7.1	7		6.1		5.11	3.5		15.4	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1505	2.1	4	4.1	5.1	6.2	7.1		4		8	5.6			15.2	16.3	17.1		19.6		21.14	22.1	23.5	24.3				externally projected rim
1506	2.7	4	4.1	5.1	6.1	7.1	9		4.25		4.04	3.4		15.2	16.3	17.1		19.6		21.14	22.1	23.5	24.3				drooping rim

1507	2.7	4	4.1	5.1	6.1	7.1	9		5.04		5.32	3.4		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				drooping rim
1508	2.7	4	4.1	5.1	6.1	7.1	9		4.53		3.9	3.5		15.2	16.3	17.2		19.1		21.4	22.1	23.5	24.3				externally projected rim
1509	2.1	4	4.1	5.1	6.1	7.1	11		5.77		4.32	4.7		15.2	16.3	17.3		19.5		21.9	22.4	23.5	24.3	25.1	26.1	27.4	flaring rim
1510	2.1	4	4.1	5.4	6.1	7.1	11		6.98		7.72	4.7		15.3	16.2	17.4		19.5		21.9	22.7	23.3	24.3				concave sided bowl
1511	2.1	4	4.1	5.1	6.1	7.1	16		8.62		7.93	6.6		15.3	16.2	17.3		19.5		21.9	22.7	23.2	24.2				externally projected rim
1512	2.1	4	4.1	5.1	6.1	7.1	15		10.6		11.65	6.9		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1513	2.8	4	4.1	5.4	6.1	7.1	15		8.89		7.71	4.9		15.2	16.3	17.2		19.6		21.11	22.1	23.3	24.3	25.1	26.1	27.4	concave sided bowl
1514	2.1	4	4.1	5.4	6.1	7.1	10		11.5		6.42	3.9		15.2	16.3	17.2		19.2		21.13	22.1	23.3	24.3				internally beaked rim
1515	2.1	4	4.1	5.1	6.1	7.1	12		11.9		10.35	6.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1516	2.1	4	4.1	5.4	6.1	7.1			17.9		11.65	8.6		15.2	16.1	17.3		19.6		21.14	22.7	23.5	24.3				concave sided bowl
1517	2.1	4	4.1	5.1	6.1	7.1	14		9.35		8.29	5.8		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected
1518	2.1	4	4.1	5.4	6.1	7.1	15		12.4		11.02			15.5	16.2	17.4		19.6		21.13	22.7	23.3	24.3				concave sided bowl
1519	2.1	4	4.1	5.1	6.1	7.1	13		9.24		7.16	6.6		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected
1520	2.7	4	4.1	5.2	6.1	7.1	31		13.6		10.33	9.4		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				drooping rim
1521	2.2	4	4.4	5.1	6.2	7.1		6		11	6.4			15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.5				
1522	2.7	4	4.1	5.4	6.1	7.1	20		9.25		7.1	6		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				nternally beaked rim
1523	2.1	4	4.1	5.1	6.1	7.1	6		7.94		9.91			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1524	2.1	4	4.2	5.4	6.1	7.1	12		6.54		7.56	4.5		15.2	16.3	17.1		19.6		21.3	22.5	23.3	24.3				concave sided bowl
1525	2.7	4	4.1	5.1	6.1	7.1	6		3.71		3.24	2.6		15.2	16.3	17.2		19.6		21.13	22.7	23.5	24.3				externally projected rim
1526	2.1	4	4.1	5.4	6.1	7.1	27		13.2		10.53			15.4	16.2	17.4		19.2		21.5	22.4	23.2	24.2				incurved rim
1527	2.1	4	4.1	5.1	6.1	7.1	18		7.02		4.55	3.7		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected rim
1528	2.8	4	4.1	5.1	6.1	7.1	16		10.2		4.1			15.2	16.3	17.2		19.5		21.7	22.5	23.3	24.3	25.1	26.1	27.2	short beaked
1529	2.3	4	4.3	5.3	6.1	7.1	26		15.2		9.08	6.9		15.2	16.3	17.2		19.6		21.12	22.9	23.5	24.5				internally beaked rim
1530	2.7	4	4.1	5.1	6.1	7.1	9		7.55		4.83	3.2		15.2	16.3	17.3		19.1		21.6	22.4	23.5	24.3				externally projected rim
1531	2.1	4	4.1	5.1	6.1	7.1	18		10.7		10.52	7.4		15.3	16.2	17.3		19.6		21.11	22.8	23.2	24.2				beaked rim
1532	2.1	4	4.1	5.1	6.1	7.1	14		11			6.3		15.5	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1533	2.1	4	4.1	5.1	6.1	7.1	20		14		10.93	8.6		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1534	2.2	4	4.4	5.4	6.1	7.1	15		7.73		3.91	4.6	15	15.2	16.3	17.3		19.6		21.12	22.9	23.3	24.3				internally beaked rim
1535	2.8	4	4.1	5.4	6.1	7.1	18		8.8		6.49	4.3		15.2	16.3	17.3		19.6		21.14	22.9	23.3	24.3				concave sided bowl
1536	2.1	4	4.1	5.1	6.1	7.1	15		9.68		7.69	5.6		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1537	2.1	4	4.2	5.4	6.1	7.1	16		9.16		7.18	5.7		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected rim
1538	2.8	4	4.1	5.4	6.1	7.1	17		7.77		6.53	2.8		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				externally projected rim

1539	2.1	4	4.1	5.6	6.2	7.1		3			6.81			15.2	16.3	17.3		19.2		21.5	22.1	23.5	24.5				
1540	2.1	4	4.1	5.1	6.1	7.1	16		12		11.98	5.5		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1541	2.1	4	4.1	5.1	6.1	7.1	12		10.5		8.58	5.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected, flaring
1542	2.1	4	4.1	5.1	6.1	7.1	18		14.6		9.15	9.8		15.4	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim
1543	2.1	4	4.1	5.1	6.1	7.1	5		4.87		5.92			15.2	16.3	17.3		19.2		21.5	22.4	23.5	24.5				externally projected rim
1544	2.1	4	4.1	5.1	6.1	7.1	11		11.9		9.28	6.1		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1545	2.1	4	4.1	5.1	6.1	7.1	14		8.25		7.39	6.3		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected faring
1546	2.1	4	4.1	5.1	6.1	7.1	5		4.58		4.38	4		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				beaked rim
1547	2.3	4	4.3	5.1	6.1	7.1	8		4.72		5.05			15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				externally projected rim
1548	2.1	4	4.1	5.1	6.1	7.1	10		11.1		10.28	5.8		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1549	2.1	4	4.1	5.4	6.1	7.1	10		18.7		8.87			15.4	16.2	17.3		19.6		21.13	22.7	23.2	24.2				internally thickend rim
1550	2.1	4	4.1	5.1	6.1	7.1	18		12.9		9.45	5.6		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1551	2.1	4	4.1	5.1	6.1	7.1	20		3.75		9.76			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1552	2.1	4	4.1	5.1	6.1	7.1	12		8.89		8.4	6		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected
1553	2.1	4	4.1	5.1	6.2	7.1		4		4.8	5.57			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1554	2.1	4	4.1	5.2	6.1	7.1	32		13.4		10.04	5.9		15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3				internally beaked rim
1555	2.1	4	4.1	5.4	6.1	7.1	22		8.53		6.31			15.5	16.1	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1556	2.1	4	4.2	5.1	6.1	7.1	19		10.4		9	6.1		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				short beaked rim
1557	2.1	4	4.1	5.1	6.1	7.1	15		11.7		6.69	6.5		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
1558	2.8	4	4.1	5.4	6.1	7.1	15		9.33		7.03	4.4		15.2	16.3	17.2		19.5		21.9	22.9	23.3	24.3				concave sided bowl
1559	2.1	4	4.1	5.1	6.1	7.1	17		12.8		11.15		29	15.3	16.2	17.4		19.6		21.12	22.1	23.2	24.5				externally projected rim
1560	2.1	4	4.2	5.1	6.1	7.1	24		15.5		9.16	5.6	28	15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				short beaked rim
1561	2.2	4	4.2	5.4	6.1	7.1	17		10.8		6.06	5		15.2	16.3	17.3		19.1		21.4	22.9	23.3	24.3				internally beaked rim
1562	2.7	4	4.1	5.1	6.1	7.1	12		4.58		3.55	3.4		15.2	16.3	17.2		19.7		21.3	22.1	23.3	24.3				externally projected flaring
1563	2.1	4	4.1	5.4	6.1	7.1	15		10.4		7.17	5.4		15.2	16.3	17.3		19.1		21.4	22.4	23.3	24.3				internally beaked rim
1564	2.1	4	4.1	5.1	6.1	7.1	16		9.16		7.25	3.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1565	2.1	4	4.1	5.1	6.1	7.1	18		10.7		7.22	7.5		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1566	2.1	4	4.1	5.1	6.1	7.1	16		8.01		6.15	5.6		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected flaring
1567	2.2	4	4.4	5.2	6.1	7.1	20		9.68		9.15	6.1		15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.2				internally beaked rim
1568	2.1	4	4.1	5.3	6.1	7.1	33		13.1		10.88	7.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1569	2.1	4	4.1	5.3	6.1	7.1	14		12.5		15.45	10		15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				externally projected rim

1570	2.1	4	4.1	5.1	6.2	7.1		3			5.72			15.2	16.3	17.4		19.6		21.14	22.1	23.3	24.3				
1571	2.1	4	4.1	5.2	6.1	7.1	37		13.3		12		31	15.2	16.3	17.2		19.8	20.1	21.3	22.1	23.3	24.3				externally projected rim
1572	2.1	4	4.1	5.4	6.1	7.1	23		10.7		9.08	5		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				concave sided bowl
1573	2.1	4	4.1	5.1	6.1	7.1	28		10.1		6.61	6.4		15.2	16.3	17.2		19.6		21.13	22.7	23.3	24.3				drooping rim
1574	2.1	4	4.1	5.1	6.2	7.1		4		7.1	6.69			15.2	16.3	17.3		19.5		21.9	22.7	23.2	24.5				
1575	2.1	4	4.1	5.1	6.2	7.1		3		17	8.94			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.5				
1576	2.7	4	4.1	5.2	6.1	7.1	28		11.9		15.12	7.4	29	15.2	16.3	17.2		19.5		21.9	22.9	23.3	24.3				internally beaked rim
1577	2.1	4	4.1	5.4	6.1	7.1	27		18.5		7.59			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1578	2.7	4	4.1	5.1	6.1	7.1	12		7.79		5.19	5.6		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected rim
1579	2.1	4	4.2	5.1	6.1	7.1	24		15.8		13.81	8.5		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.2				beaked rim
1580	2.1	4	4.1	5.1	6.1	7.1	8		5.73		5.63	4.5		15.2	16.3	17.2		19.2		21.13	22.1	23.3	24.3	25.1	26.1	27.4	externally projected rim
1581	2.1	4	4.1	5.1	6.1	7.1	15		10		9.39	6.8		15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3	25.1	26.1	27.4	externally projected rim
1582	2.1	4	4.1	5.1	6.1	7.1	17		9.54		6.09	6		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1583	2.1	4	4.1	5.2	6.1	7.1	12		8.23		5.58	5.5		15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3	25.1	26.1	27.4	externally projected rim
1584	2.2	4	4.2	5.5	6.2	7.1		10		9.3	6.73	5.7		15.2	16.3	17.3		19.6		21.4	22.1	23.2	24.3				pedestelled base
1585	2.8	4	4.1	5.1	6.2	7.1		3			6.7			15.2	16.3	17.2		19.6		21.13	22.5	23.2	24.3				
1586	2.7	4	4.1	5.4	6.1	7.1	15		9.02		6.3	4.6		15.2	16.3	17.2		19.2		21.13	22.1	23.3	24.3				internally beaked rim
1587	2.1	4	4.1	5.3	6.1	7.1	22		14.2		10.5	8.1		15.2	16.2	17.3		19.2		21.5	22.4	23.3	24.3				externally projected rim
1588	2.3	4	4.3	5.1	6.2	7.1		6		4.5	7.84			15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.3				
1589	2.7	4	4.1	5.4	6.1	7.1	15		8.27		6.72	4.6		15.2	16.3	17.2		19.2		21.5	22.4	23.3	24.3				concave sided bowl
1590	2.1	4	4.1	5.4	6.1	7.1	20		8.19		6.23	4.9		15.2	16.2	17.3		19.2		21.5	22.7	23.3	24.3				externally projected rim
1591	2.2	4	4.2	5.2	6.1	7.1	28		9.27		8.15	7.3		15.2	16.3	17.3		19.2		21.5	22.5	23.3	24.3				internally beaked rim
1592	2.7	4	4.1	5.1	6.1	7.1	6		4.1		3.93	4.2		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected rim
1593	2.8	4	4.1	5.4	6.1	7.1	10		9.16		6.53	4.4		15.2	16.2	17.2		19.6		21.13	22.7	23.3	24.3				internally beaked rim
1594	2.1	4	4.1	5.4	6.1	7.1	10		9.47		7.28	7.1		15.2	16.3	17.3		19.3		21.7	22.1	23.2	24.2				internally beaked rim
1595	2.1	4	4.1	5.2	6.1	7.1	12		6.95		6.31	6.6		15.2	16.3	17.2		19.2		21.5	22.4	23.3	24.3				externally proected
1596	2.1	4	4.1	5.1	6.1	7.1	10		4.85		7.96	3.6		15.2	16.3	17.3		19.6		21.13	22.5	23.2	24.2				externally proected
1597	2.1	4	4.1	5.1	6.1	7.1	18		11		9.75	7.7		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projecte rim
1598	2.1	4	4.2	5.3	6.1	7.1	20		12.3		9.85	7.5		15.2	16.3	17.3		19.6		21.12	22.5	23.3	24.3				bilaterally projected rim
1599	2.1	4	4.1	5.4	6.1	7.1	16		12.3		8.72			15.2	16.3	17.3		19.6		21.13	22.9	23.2	24.2				incurved rim
1600	2.1	4	4.1	5.1	6.1	7.1	18		12.2		9.81	6.9		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projecte rim
1601	2.1	4	4.1	5.1	6.1	7.1	22		9.15		9.38	4.8		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected flarng

1602	2.7	4	4.1	5.1	6.1	7.1	23		11		8.83	6.2		15.2	16.3	17.3		19.5		21.14	22.1	23.2	24.3				beaked rim
1603	2.1	4	4.2	5.1	6.1	7.1	6		7.25			6.9		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				
1604	2.1	4	4.1	5.1	6.1	7.1	15		9.36		7.51	7.1		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1605	2.1	4	4.2	5.1	6.1	7.1	9		5.32		3.33	4.5		15.2	16.3	17.3		19.5		21.8	22.6	23.3	24.3				externally projected rim
1606	2.1	4	4.1	5.4	6.1	7.1	21		14.6		11.17			15.3	16.2	17.4		19.6		21.13	22.7	23.3	24.3				incurved rim
1607	2.1	4	4.1	5.1	6.1	7.1	18		9.76		9.18		28	15.2	16.3	17.3		19.6		21.14	22.5	23.2	24.2				beaked rim
1608	2.1	4	4.1	5.1	6.1	7.1	15		13.7		14.06			15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.5				externally projected rim
1609	2.5	4	4.1	5.1	6.1	7.1	15		10.8		11.35	8.2		15.2	16.2	17.4		19.5		21.9	22.7	23.2	24.2				externally projected,
1610	2.7	4	4.1	5.5	6.2	7.1		20		9.8				15.2	16.3	17.1		19.1		21.13	22.1	23.3	24.5				pedestelled base
1611	2.2	4	4.2	5.1	6.2	7.1		5		8.8	8.14			15.2	16.3	17.3		19.6		21.7	22.7	23.3	24.3				
1612	2.1	4	4.1	5.1	6.1	7.1	18		10.6		10.36	5		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1613	2.1	4	4.1	5.3	6.1	7.1	34		12.7		10.28	9.9		15.3	16.2	17.4		19.6		21.11	22.7	23.2	24.2				externally projected rim
1614	2.1	4	4.1	5.4	6.1	7.1	18		8.69		6.38	5.7		15.3	16.2	17.4		19.2		21.5	22.1	23.2	24.2				externally projected,
1615	2.1	4	4.1	5.1	6.1	7.1	18		11		7.91			15.3	16.2	17.4		19.6		21.13	22.6	23.2	24.2				externally projected,
1616	2.1	4	4.1	5.4	6.1	7.1	15		12		8.23	6.8		15.5	16.1	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1617	2.1	4	4.1	5.3	6.1	7.1	36		12.6		11.42			15.3	16.1	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1618	2.1	4	4.1	5.1	6.1	7.1	16		15.1		10.44	9.3	31	15.3	16.2	17.4		19.6		21.12	22.7	23.2	24.3				externally projected
1619	2.7	4	4.1	5.1	6.2	7.1		18		11	7.93			15.2	16.3	17.2		19.2		21.13	22.1	23.5	24.3				pedesteled base
1620	2.1	4	4.1	5.3	6.1	7.1			17.5		12.39	8.9		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				internally beaked
1621	2.8	4	4.1	5.2	6.1	7.1	26		14		7.52	10		15.2	16.3	17.2		19.7		21.3	22.1	23.3	24.3				internally beaked
1622	2.1	4	4.1	5.1	6.1	7.1	14		11.7		8.72	8		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				flaring rim
1623	2.1	4	4.1	5.1	6.1	7.1	15		13.5		9.85	8.2		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1624	2.7	4	4.1	5.1	6.2	7.1		4		8	4.5			15.2	16.3	17.2		19.5		21.7	22.7	23.3	24.3				
1625	2.1	4	4.1	5.1	6.1	7.1	18		8.32		6.16	4.9		15.2	16.3	17.2		19.6		21.11	22.8	23.5	24.3				externally projected rim
1626	2.1	4	4.1	5.1	6.2	7.1		5		8.4	6.47			15.2	16.3	17.3		19.4		21.7	22.5	23.2	24.2				
1627	2.8	4	4.1	5.4	6.1	7.1	14		12.3		7.54	7.5		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				incurved rim
1628	2.2	4	4.1	5.1	6.1	7.1	10		6.01		5.24	4.1		15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.3				externally projected rim
1629	2.1	4	4.1	5.4	6.1	7.1	11		5.52		4.28	4.2		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1630	2.3	4	4.3	5.1	6.1	7.1	10		6.54		6.88	3.7		15.2	16.3	17.3		19.6		21.14	22.9	23.3	24.3				beaked rim
1631	2.1	4	4.1	5.4	6.1	7.1	14		9.24		7.27	5.7		15.2	16.3	17.2		19.7		21.3	22.1	23.3	24.3				externally projected rim
1632	2.1	4	4.1	5.1	6.1	7.1	10		7.39		5.01	4.5		15.2	16.3	17.1		19.2		21.2	22.1	23.3	24.3				externally projected rim
1633	2.1	4	4.1	5.1	6.1	7.1	11		9.66		9.76			15.2	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim

1634	2.1	4	4.1	5.1	6.1	7.1	14		7.77		7.28	4.8		15.3	16.2	17.4		19.6		21.11	22.7	23.2	24.2				externally projected rim
1635	2.3	4	4.3	5.1	6.1	7.1	9		7.41		5.29	5.3		15.2	16.3	17.3		19.6		21.14	22.9	23.3	24.3				externally projected rim
1636	2.7	4	4.1	5.2	6.1	7.1	26		10.3		7.72	5.6		15.2	16.3	17.2		19.5		21.9	22.7	23.3	24.3				internally beaked
1637	2.1	4	4.1	5.4	6.1	7.1	13		10.7		7.72			15.3	16.3	17.3		19.6		21.11	22.7	23.2	24.2				incurved rim
1638	2.1	4	4.1	5.1	6.1	7.1	12		7.38		8.55	5.6		15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.2				externally projected rim
1639	2.7	4	4.1	5.1	6.1	7.1	10		4.71		3.41	3.7		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected
1640	2.8	4	4.1	5.1	6.1	7.1	12		9.35		7.1	6.3		15.2	16.3	17.3		19.4		21.3	22.1	23.3	24.3				externally projected rim
1641	2.8	4	4.1	5.1	6.1	7.1	18		10.7		8.5	5.8		15.2	16.3	17.3		19.6		21.11	22.8	23.3	24.3				externally projected rim
1642	2.1	4	4.1	5.5	6.2	7.1		16		8.8	13.72	5.1		15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				pedestelled base
1643	2.8	4	4.1	5.1	6.2	7.1		4		6.2	6.14			15.2	16.3	17.3		19.6		21.12	22.4	23.5	24.3				
1644	2.3	4	4.3	5.1	6.2	7.1		7		5.7	11.35			15.2	16.3	17.3		19.5		21.8	22.6	23.3	24.3				
1645	2.8	4	4.1	5.1	6.1	7.1	10		9.19		6.41	4.4		15.2	16.3	17.2		19.4		21.8	22.1	23.3	24.3				short beaked rim
1646	2.2	4	4.1	5.1	6.1	7.1	15		8.92		9.07	7		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally orojected, flaring
1647	2.8	4	4.4	5.3	6.1	7.1	26		9.57		10.42	4.3	25	15.2	16.3	17.3		19.6		21.12	22.9	23.3	24.3				internally beaked rim
1648	2.1	4	4.1	5.1	6.2	7.1		3		4.1	7.12			15.2	16.3	17.2		19.1		21.8	22.1	23.2	24.3				
1649	2.1	4	4.1	5.5	6.2	7.1		30		9.3	10.78	4.6		15.2	16.3	17.3		19.6		21.12	22.7	23.3	24.3				pedestelled base
1650	2.1	4	4.1	5.1	6.2	7.1		5		8.4	7.32			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				
1651	2.2	4	4.1	5.1	6.1	7.1	10		5.41		4.3			15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				externally projected rim
1652	2.1	4	4.1	5.4	6.1	7.1	17		9.87		8.59			15.5	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1653	2.2	4	4.2	5.3	6.1	7.1	18		10.8		8.75	5.9	26	15.2	16.3	17.3		19.3		21.7	22.5	23.3	24.3				externally projected,
1654	2.1	4	4.1	5.1	6.2	7.1		7		8.6	8.41			15.2	16.2	17.4		19.6		21.13	22.1	23.5	24.5				
1655	2.1	4	4.1	5.1	6.1	7.1	6		4.19		5.39	2.5		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected rim
1656	2.8	4	4.1	5.1	6.1	7.1	14		9.44		6.58	5.9		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				externally projected rim
1657	2.7	4	4.1	5.5	6.2	7.1		24		11	8.34			15.2	16.3	17.2		19.5		21.13	22.1	23.2	24.3				pedesteled base
1658	2.1	4	4.1	5.4	6.1	7.1	15		10.3		9.49	4.5		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				internally beaked rim
1659	2.1	4	4.1	5.4	6.1	7.1	18		8.2		4.83	5.2		15.2	16.3	17.3		19.1		21.4	22.1	23.5	24.3				internally beaked rim
1660	2.1	4	4.1	5.4	6.1	7.1	19		8.96		6.95	6.6		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.3				externally projected rim
1661	2.1	4	4.1	5.1	6.1	7.1	22		11.2		11.75	6.7	24	15.3	16.3	17.3		19.3		21.7	22.1	23.5	24.2				externally projected rim
1662	2.1	4	4.1	5.4	6.1	7.1	17		9.25		6.59	5.1		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				externally projected rim
1663	2.1	4	4.1	5.1	6.1	7.1	16		11.4		7.79	5.9		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1664	2.7	4	4.1	5.1	6.1	7.1	8		4.74		3.57	3.3		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				internally beaked rim

1665	2.8	4	4.2	5.4	6.1	7.1	12		8.15		6.88	3.9		15.2	16.3	17.2		19.6		21.8	22.6	23.3	24.3				undercut rim
1666	2.1	4	4.1	5.1	6.1	7.1	16		13.2		11.71	9.5		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1667	2.1	4	4.1	5.1	6.1	7.1	40		15.2		11.7	7.5	38	15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				beaked , thick rim
1668	2.1	4	4.1	5.4	6.1	7.1	6			7	6.72			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1669	2.1	4	4.1	5.1	6.1	7.1	12		10.2		13.32	6.4	24	15.3	16.2	17.3		19.6		21.13	22.7	23.5	24.2				externally projected rim
1670	2.2	4	4.2	5.1	6.1	7.1	10		5.72		4.08	4.4		15.2	16.3	17.3		19.7		21.3	22.1	23.3	24.3				externally projected rim
1671	2.1	4	4.1	5.3	6.1	7.1	11		7.44		5.44	5.2		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1672	2.1	4	4.1	5.1	6.1	7.1	15		9.27		7.64	6.1		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1673	2.5	4	4.1	5.1	6.1	7.1	14		9.89		9.84	6.6		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1674	2.1	4	4.1	5.1	6.1	7.1	26		9.66		3.8	8.7		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				externally projected
1675	2.3	4	4.3	5.1	6.2	7.1		6		5.3	5.43			15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				
1676	2.1	4	4.1	5.4	6.1	7.1	10		14.3		8.02			15.3	16.2	17.4		19.4		21.8	22.1	23.2	24.2				incurved rim
1677	2.1	4	4.1	5.2	6.1	7.1	26		10		10.06	8.6		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				internally beaked rim
1678	2.2	4	4.2	5.1	6.2	7.1		6		4.2	6.63			15.2	16.3	17.3		19.6		21.7	22.5	23.3	24.3				
1679	2.1	4	4.1	5.1	6.1	7.1	14		9.12		8.31	4.8		15.2	16.3	17.3		19.3		21.7	22.5	23.2	24.2				externally projected rim
1680	2.1	4	4.1	5.4	6.1	7.1	18		14.2		12.87			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1681	2.1	4	4.1	5.3	6.1	7.1	34		21.4		11.68			15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				internally beaked rim
1682	2.1	4	4.1	5.1	6.2	7.1		12		7.4	5.59			15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				
1683	2.1	4	4.1	5.4	6.1	7.1	13		6.19		4.75	4.1		15.2	16.3	17.2		19.6		21.9	22.7	23.2	24.2				externally projected rim
1684	2.1	4	4.1	5.1	6.1	7.1	15		9.15		5.86	6.2		15.2	16.3	17.3		19.2		21.5	22.1	23.5	24.3				short beaked
1685	2.1	4	4.1	5.1	6.1	7.1	5m			4.1	4.65			15.2	16.3	17.3		19.5		21.13	22.1	23.5	24.3				
1686	2.1	4	4.1	5.1	6.1	7.1	7		4.78		3.73	3.7		15.2	16.3	17.2		19.5		21.9	22.1	23.3	24.3				externally projected
1687	2.1	4	4.1	5.1	6.1	7.1	15		12.2		8.74	6.7		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1688	2.1	4	4.1	5.2	6.1	7.1	26		10.8		10	5.9	22	15.2	16.3	17.1		19.1		21.4	22.1	23.3	24.3				internally beaked rim
1689	2.1	4	4.1	5.1	6.1	7.1	20		11.4		9.26	7.7		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1690	2.1	4	4.1	5.5	6.2	7.1		19		10	10.39	6.3		15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.3				pedestelled base
1691	2.1	4	4.1	5.2	6.1	7.1	24		14.2		13.37			15.2	16.3	17.2		19.6		21.13	22.4	23.3	24.3				bilaterally projected rim
1692	2.1	4	4.1	5.4	6.1	7.1	28		11.3		8.5	5.9	22	15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved rim
1693	2.1	4	4.1	5.1	6.1	7.1	20		11.4		12.47	5.9		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected,
1694	2.1	4	4.1	5.2	6.1	7.1	26		10.4		10.66	6.3	22	15.2	16.3	17.1		19.5		21.9	22.7	23.3	24.3	25.1	26.1	27.3	bilaterally projected rim
1695	2.1	4	4.1	5.4	6.1	7.1	16		9.37		5.47	7.2		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				externally projected
1696	2.2	4	4.1	5.1	6.1	7.1	27		16.1		13.36	5.6	31	15.2	16.3	17.3		19.5		21.13	22.1	23.3	24.3	25.1	26.1	27.4	beaked rim

1697	2.1	4	4.1	5.4	6.1	7.1	16		4.26		5.71	6.2		15.2	16.3	17.3		19.6		21.12	22.1	23.2	24.2				internally thickend rim
1698	2.1	4	4.1	5.1	6.2	7.1		8		8.9	8.85			15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				
1699	2.1	4	4.1	5.4	6.1	7.1	14		8.89		7.31	5.3		15.2	16.3	17.3		19.6		21.14	22.5	23.2	24.3				internally thickend rim
1700	2.1	4	4.1	5.4	6.1	7.1	30		14.2		12.81			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1701	2.2	4	4.2	5.2	6.1	7.1	23		8.77		9.7	6.8		15.2	16.3	17.3		19.5		21.8	22.5	23.3	24.3				xeternally more projected
1702	2.1	4	4.1	5.1	6.2	7.1		7		4.9	7.55			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				
1703	2.3	4	4.3	5.1	6.2	7.1		7		7.2	6.35			15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.3				
1704	2.1	4	4.1	5.1	6.2	7.1		4		8.4	5.63			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				
1705	2.1	4	4.1	5.1	6.1	7.1	20		8.61		6.65	4.9		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.3	25.1	26.1	27.4	externally projected rim
1706	2.1	4	4.1	5.4	6.1	7.1	15		8.36		7.27	4.7		15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				internally thickend rim
1707	2.2	4	4.1	5.2	6.1	7.1	20		11.1		9.23	7	21	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				bilaterally projected rim
1708	2.1	4	4.1	5.4	6.1	7.1	14		7.5		6.81	4.9		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1709	2.1	4	4.1	5.4	6.1	7.1	9		9.12		5.38			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1710	2.1	4	4.1	5.3	6.1	7.1	18		10.2		5.56	7.2		15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected rim
1711	2.1	4	4.1	5.1	6.1	7.1	16		12.1		7.34	7.4		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1712	2.1	4	4.1	5.1	6.2	7.1		6		6.7	6.15			15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				
1713	2.1	4	4.1	5.1	6.1	7.1	12		8.39		8.52	5.2		15.2	16.3	17.3		19.6		21.14	22.7	23.5	24.2				externally projected rim
1714	2.1	4	4.1	5.4	6.1	7.1	10		6.24		5.54	4.4		15.2	16.3	17.3		19.6		21.14	22.7	23.3	24.3				externally projected rim
1715	2.7	4	4.1	5.1	6.1	7.1	8		4.81		3.88			15.2	16.3	17.1		19.2		21.5	22.7	23.3	24.3				internally thickend rim
1716	2.7	4	4.1	5.1	6.2	7.1		4		6.1	5.75			15.2	16.3	17.1		19.2		21.5	22.7	23.2	24.3				
1717	2.1	4	4.1	5.1	6.1	7.1	14		10		9.05	5.2		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				externally projected rim
1718	2.1	4	4.1	5.3	6.1	7.1	18		7.85		5.02	6		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				externally projected rim
1719	2.1	4	4.4	5.1	6.2	7.1		8		7.6	9.24			15.2	16.3	17.2		19.6		21.6	22.5	23.2	24.5				
1720	2.1	4	4.2	5.1	6.1	7.1	10		6.28		4.76	4.1		15.2	16.3	17.2		19.6		21.7	22.5	23.3	24.3				externally prjected flaring
1721	2.1	4	4.1	5.4	6.1	7.1	12		6.27		5.16	4.3		15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.2				externally projected rim
1722	2.1	4	4.1	5.4	6.1	7.1	12		6.2		4.87	4.8		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
1723	2.8	4	4.1	5.1	6.1	7.1			17.7		9.73	8		15.2	16.3	17.2		19.1		21.4	22.1	23.5	24.3				beaked rim
1724	2.2	4	4.1	5.7	6.1	7.1	19		4.53		3.7			15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.2				externally projected rim
1725	2.8	4	4.2	5.1	6.1	7.1	9		9.66		6.98	6.4		15.2	16.3	17.2		19.6		21.3	22.5	23.3	24.3				externally projected rim
1726	2.1	4	4.1	5.5	6.2	7.1		16		9.8	5.03	5.8		15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.3				pedestelled base
1727	2.2	4	4.1	5.1	6.1	7.1	12		6.67		4.55	4.7		15.2	16.3	17.3		19.6		21.8	22.6	23.3	24.3				externally projected rim
1728	2.1	4	4.1	5.1	6.1	7.1	10		6.77		5.37	5		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim

1729	2.1	5	4.1	5.1	6.1	7.1	15		5.98		5.4	4.3		15.1	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
1730	2.1	5	4.1	5.3	6.1	7.1	32		12.2		10.05			15.3	16.3	17.4		19.6		21.14	22.7	23.2	24.2				externally projected rim
1731	2.1	5	4.1	5.4	6.2	7.1		6		7.5	8.99			15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.5				
1732	2.1	5	4.1	5.4	6.1	7.1	20		11.5		11.44			15.3	16.2	17.4		19.2		21.5	22.4	23.2	24.2				incurved rim
1733	2.1	5	4.1	5.2	6.1	7.1	18		10.2		5.77	7		15.2	16.3	17.3		19.7		21.3	22.4	23.3	24.3				internally beaked rim
1734	2.1	5	4.1	5.1	6.1	7.1	15		9.43		6.02	5.2		15.3	16.2	17.4		19.5		21.9	22.1	23.2	24.2				externally projected rim
1735	2.1	5	4.1	5.1	6.1	7.1	48		18.7		12.14		43	15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3	25.1	26.1	27.4	beaked rim
1736	2.7	5	4.1	5.4	6.1	7.1	15		7.34		5.31	4.1		15.2	16.3	17.2		19.5		21.9	22.1	23.3	24.3				straight sided,
1737	2.8	5	4.1	5.1	6.1	7.1	29		8.15		11.07	7.3	27	15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				externally projected rim
1738	2.1	5	4.1	5.1	6.1	7.1	15		12.8		12.16	6.6		15.3	16.2	17.4		19.2		21.5	22.1	23.2	24.2				externally projected rim
1739	2.8	5	4.1	5.4	6.1	7.1	16		9.48		6.66	4.6		15.2	16.3	17.3		19.6		21.14	22.5	23.3	24.3				externally projected rim
1740	2.1	5	4.1	5.1	6.1	7.1	30		17.1		13.06	14	29	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				drooping rim
1741	2.1	5	4.1	5.2	6.1	7.1	32		13		7.14	7.5	24	15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				internally beaked
1742	2.1	5	4.1	5.1	6.1	7.1	15		12		12.34	8.4		15.3	16.3	17.4		19.6		21.14	22.7	23.5	24.2				externally projected rim
1743	2.7	5	4.1	5.2	6.1	7.1				15	8.17			15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				externally projected rim
1744	2.2	5	4.1	5.1	6.2	7.1		4		5.3	5.6			15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				
1745	2.1	5	4.1	5.9	6.2	7.1		18		7.5	6.74			15.2	16.3	17.3		19.5		21.9	22.7	23.2	24.5				
1746	2.1	5	4.1	5.4	6.1	7.1	16		5.17		5.6	3.4	13	15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				externally projected rim
1747	2.1	5	4.1	5.1	6.2	7.1		5		6.6	5.1			15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				
1748	2.1	5	4.1	5.1	6.1	7.1	20		9.42		7.76	10		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
1749	2.2	5	4.1	5.1	6.2	7.1		6		8.4	6.28			15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				
1750	2.1	5	4.1	5.4	6.1	7.1	15		9.16		5.73	5.4		15.2	16.3	17.3		19.6		21.11	22.1	23.3	24.3				internally beaked
1751	2.1	5	4.1	5.1	6.1	7.1	7		5		3.75	3		15.2	16.3	17.3		19.5		21.9	22.7	23.5	24.3				flaring rim
1752	2.1	5	4.1	5.2	6.1	7.1	24		7.25		6.75	3.4	13	15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				beaked
1753	2.1	5	4.1	5.1	6.1	7.1		7		8.4	7.61			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
1754	2.1	5	4.1	5.1	6.1	7.1	16		11		9.66	9		15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1755	2.1	5	4.1	5.4	6.1	7.1	14		14.4		15.67			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1756	2.2	5	4.1	5.4	6.1	7.1	18		10.7		8.35	5.5		15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				externally projected rim
1757	2.1	5	4.1	5.1	6.2	7.1		5		5.6	5.95			15.2	16.2	17.4		19.6		21.13	22.1	23.3	24.3				
1758	2.2	5	4.1	5.9	6.1	7.1	10		4.31		5.29			15.2	16.3	17.3		19.3		21.7	22.1	23.3	24.3				
1759	2.3	5	4.3	5.1	6.2	7.1		4		5	6.9			15.2	16.3	17.3		19.2		21.12	22.9	23.3	24.3				
1760	2.8	5	4.1	5.1	6.1	7.1	15		10.7		7.46	7.1		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projrctrd rim

1761	2.2	5	4.1	5.1	6.1	7.1	6		5.72		4.53	3.4		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projrctrd rim
1762	2.1	5	4.1	5.4	6.1	7.1	14		8.99		7.8	5.6		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				internally beaked
1763	2.2	5	4.1	5.5	6.2	7.1		26		10	9.1			15.2	16.3	17.3		19.3		21.7	22.5	23.5	24.5				pedestelled base
1764	2.2	5	4.1	5.5	6.2	7.1		21		7.3	7.05			15.2	16.3	17.3		19.6		21.7	22.5	23.5	24.3				pedestelled base
1765	2.1	5	4.1	5.4	6.1	7.1	20		9.99		7.06	5.7		15.2	16.3	17.3		19.5		21.9	22.7	23.3	24.3				internally beaked
1766	2.8	5	4.1	5.1	6.2	7.1		6		5.7	8.37			15.2	16.3	17.2		19.6		21.14	22.1	23.5	24.3				
1767	2.1	5	4.1			7.1																					
1768	2.1	5	4.1			7.1																					
1769	2.1	5	4.1	5.4	6.1	7.1	26		13.9		11.66			15.3	16.2	17.4		19.2		21.5	22.1	23.2	24.2				incurved rim
1770	2.1	5	4.1	5.4	6.1	7.1	24		16.1		10.59	9.4		15.3	16.2	17.4		19.2		21.5	22.1	23.2	24.2				incurved rim
1771	2.1	5	4.1	5.3	6.1	7.1	30		13.4		11.38			15.5	16.2	17.4		19.5		21.9	22.7	23.2	24.2				externally projected rim
1772	2.1	5	4.1	5.4	6.2	7.1		7		7	5.87			15.2	16.3	17.3		19.5		21.9	22.7	23.2	24.2				
1773	2.1	5	4.1	5.1	6.1	7.1	20		14.7		6.82	8.7	23	15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				beaked rim
1774	2.1	5	4.1	5.4	6.1	7.1	12		11.3		11.41			15.3	16.2	17.4		19.6		21.14	22.1	23.2	24.2				incurved rim
1775	2.1	5	4.1	5.1	6.2	7.1		5		8.5	7.13			15.2	16.3	17.2		19.7		21.13	22.1	23.5	24.3				
1776	2.2	5	4.1	5.2	6.1	7.1	20		9.23		8.84	5.9		15.2	16.3	17.2		19.6		21.11	22.1	23.3	24.3				bilaterally projected rim
1777	2.7	5	4.1	5.5	6.2	7.1		20		8.6		4.4		15.2	16.3	17.2		19.1		21.13	22.1	23.2	24.3				pedestelled base
1778	2.1	5	4.1	5.2	6.1	7.1	24		9.32		10.73	6.3		15.2	16.3	17.2		19.3		21.7	22.1	23.3	24.3				internally beaked
1779	2.1	5	4.1	5.1	6.1	7.1	32		11.6		10.47	9		15.3	16.3	17.3		19.6		21.13	22.1	23.2	24.2				externally projected,
1780	2.1	5	4.1	5.3	6.1	7.1	26		15.9		11.35			15.2	16.3	17.2		19.2		21.5	22.4	23.3	24.3				
1781	2.1	5	4.1	5.1	6.2	7.1		8		4.8	4.92			15.2	16.3	17.2		19.2		21.5	22.1	23.5	24.3				
1782	2.1	5	4.1	5.4	6.1	7.1	26		9.79		10.93			15.3	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1783	2.7	5	4.1	5.5	6.2	7.1		20		9.7	7.68			15.2	16.3	17.2		19.2		21.13	22.1	23.5	24.3				pedestelled base
1784	2.1	5	4.1	5.1	6.1	7.1	12		9.72		10.25	6.9		15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
1785	2.7	5	4.1	5.1	6.1	7.1	13		6.8		5.36	6.5		15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				under cut rim
1786	2.1	5	4.1	5.1	6.1	7.1	18		10.4		8.9	8.4		15.5	16.2	17.4		19.2		21.5	22.7	23.2	24.2				externally projected rim
1787	2.1	5	4.1	5.1	6.2	7.1		8		5.2	6.75			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				
1788	2.7	5	4.1	5.1	6.1	7.1	8		5.37		8.9	4.3		15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				externally projected flaring
1789	2.1	5	4.1	5.1	6.1	7.1	8		8.29		8.42			15.3	16.3	17.3		19.6		21.3	22.3	23.5	24.5				externally projected rim
1790	2.1	5	4.1	5.4	6.1	7.1	15		7.37		7.64	5.9		15.2	16.3	17.2		19.2		21.5	22.5	23.5	24.3				externally projected rim
1791	2.2	5	4.1	5.1	6.1	7.1	10		9.77		7.13			15.2	16.3	17.3		19.7		21.7	22.5	23.5	24.3				externally projected rim
1792	2.1	5	4.1	5.1	6.1	7.1	13		6.23		5.39	5.1		15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.5				externally projected flaring

1793	2.2	5	4.1	5.5	6.2	7.1		22		12				15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				pedestelled base
1794	2.1	5	4.1	5.1	6.1	7.1	14		9.26		8.96	6.3		15.2	16.3	17.2		19.2		21.14	22.1	23.5	24.3				externally projected rim
1795	2.1	5	4.1	5.1	6.1	7.1	15		9.2		8.91	7.2		15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.3				externally projected rim
1796	2.1	5	4.1	5.4	6.1	7.1	15		8.54		8.39	5.8		15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.5				concave sided bowl
1797	2.2	5	4.1	5.1	6.1	7.1	16		6.82		5.7	4.3		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				externally projected flaring
1798	2.1	5	4.1	5.4	6.1	7.1	24		16.4		11.47			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				incurved thick rim
1799	2.1	5	4.1	5.4	6.1	7.1	20		16.1		13.07			15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
1800	2.1	5	4.1	5.1	6.1	7.1	28		18.3		12.81	11		15.5	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
1801	2.1	5	4.1	5.4	6.1	7.1	15		11.8		9.61			15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				incurved rim
1802	2.1	5	4.1	5.1	6.2	7.1		3		7.9	6.6			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.3				
1803	2.1	5	4.1	5.4	6.1	7.1	18		7.48		4.02	4.4		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected,
1804	2.1	5	4.1	5.1	6.1	7.1	14		10.3		5.93	4.1		15.2	16.3	17.2		19.4		21.8	22.6	23.2	24.3				short beaked
1988	2.1	6	4.1	5.1	6.2	7.1		12		8.7	11.47			15.2	16.2	17.3		19.3		21.5	22.4	23.5	24.3				
1989	2.5	6	4.1	5.1	6.1	7.1	36		13.4		10.92	9.5		15.3	16.2	17.4		19.2		21.13	22.1	23.2	24.3				externally projected rim
1990	2.1	6	4.1	5.1	6.1	7.1	15		10.7		9.87	5.9		15.4	16.1	17.4		19.6		21.13	22.1	23.5	24.5				externally projected rim
1991	2.7	6	4.1	5.4	6.1	7.1	19		8.76		6.43	5.7		15.2	16.3	17.3		19.5		21.7	22.7	23.3	24.3				externally projected rim
1992	2.1	6	4.1	5.1	6.1	7.1	10		7.12		6.36			15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.5				
1993	2.8	6	4.1	5.5	6.2	7.1		17		10	8.2	5.8		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3	25.1	26.1	27.3	
1994	2.1	6	4.1	5.1	6.1	7.1	16		11		7.94	5.8		15.2	16.3	17.2		19.5		21.9	22.1	23.2	24.3				externally projected rim
1995	2.1	6	4.1	5.2	6.2	7.1		12		9.3	7.85			15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected
1996	2.2	6	4.1	5.1	6.2	7.1		6		4.1	0.95			15.2	16.3	17.3		19.6		21.9	22.7	23.5	24.3				
1997	2.1	6	4.1	5.1	6.1	7.1	28		13.5		10.95	6.8		15.2	16.3	17.3		19.3		21.2	22.1	23.3	24.3	25.1	26.1	27.3	beaked rim
1998	2.1	6	4.1	5.4	6.1	7.1	12		8.6		6.86	6.1	12	15.2	16.2	17.3		19.6		21.13	22.1	23.5	24.5				externally pojected,
1999	2.1	6	4.1	5.1	6.1	7.1	15		10.6		7.74	6.7		15.3	16.2	17.4		19.2		21.5	22.1	23.5	24.2				externally projected rim
2000	2.1	6	4.1	5.4	6.1	7.1	24		8.1		8.93	5.2	11	15.2	16.2	17.4		19.2		21.5	22.1	23.3	24.3				externally projected rim
2001	2.1	6	4.1	5.1	6.2	7.1		4		7.2	7.36			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
2002	2.1	6	4.1	5.1	6.1	7.1	19		12.1		9.53	8		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
2003	2.1	6	4.1	5.1	6.1	7.1	17		9.15		9.63	6		15.3	16.3	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
2004	2.1	6	4.1	5.1	6.2	7.1		6		6.1	10.9			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
2005	2.1	6	4.1	5.1	6.2	7.1		5		7.8	9.55			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.5				
2006	2.1	6	4.1	5.3	6.1	7.1	26		12.5		9.12	6	19	15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				internally beaked
2007	2.1	6	4.1	5.1	6.1	7.1	16		13.8		11.71	6.2		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				beaked rim

2008	2.7	6	4.1	5.1	6.1	7.1	14		8.7		5.38	5.1		15.2	16.3	17.3		19.2		21.5	22.4	23.5	24.3				externally projected rim
2009	2.1	6	4.1	5.4	6.1	7.1	15		10.9		7.14	5.8		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.3				externally projected rim
2010	2.1	6	4.1	5.4	6.1	7.1	18		13.8		8.54			15.4	16.2	17.3		19.6		21.13	22.7	23.2	24.2				incurved rim
2011	2.1	6	4.1	5.1	6.1	7.1	9		6.35		4.97	6		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected rim
2012	2.1	6	4.1	5.5	6.2	7.1		16		8.2	8.89	4.5		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				pedestelled base
2013	2.1	6	4.1	5.4	6.1	7.1	16		6.6		7.33	3.9		15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				concave sided bowl
2014	2.1	6	4.1	5.1	6.1	7.1	16		12		10.23	5.7		15.4	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
2015	2.1	6	4.1	5.1	6.2	7.1		6		5.3	7.78			15.2	16.3	17.3		19.3		21.5	22.4	23.5	24.3				
2016	2.1	6	4.1	5.1	6.2	7.1		20		9.9	11.04			15.2	16.3	17.2		19.2		21.14	22.1	23.5	24.3	25.1	26.1	27.4	pedestelled base
2017	2.1	6	4.1	5.1	6.1	7.1	9		5.45		4.28	3.9		15.2	16.3	17.3		19.2		21.13	22.1	23.2	24.2				externally projected rim
2018	2.8	6	4.1	5.1	6.1	7.1	12		7.17		5.4	4.2		15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.3				externally projected rim
2019	2.1	6	4.1	5.1	6.1	7.1	12		6.78		4.99	3.6		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				flaring rim
2020	2.1	6	4.1	5.4	6.1	7.1	14		7.1		5.23	4.1		15.2	16.3	17.3		19.2		21.14	22.4	23.3	24.3				internally beaked
2021	2.1	6	4.1	5.1	6.1	7.1	17		7.92		7.43	3.1		15.2	16.3	17.3		19.1		21.4	22.4	23.3	24.3				externally projected rim
2022	2.2	6	4.1	5.4	6.1	7.1	18		7.46		4.24	6.3		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				internally beaked
2023	2.1	6	4.1	5.1	6.2	7.1		3		6.9	5.33			15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.3				
2024	2.1	7	4.1	5.1	6.2	7.1		7			8.36			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
2025	2.1	7	4.1	5.5	6.2	7.1		22	11.8		9.43	7.1		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3	25.1	26.1	27.4	pedestelled base
2026	2.8	7	4.1	5.1	6.1	7.1	22		14		11.21	9.2	23	15.2	16.3	17.3		19.6		21.14	22.7	23.5	24.3				externally projected.
2027	2.1	7	4.1	5.3	6.1	7.1	26		12.4		11.12			15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.5				externally projected rim
2028	2.7	7	4.1	5.3	6.1	7.1	18		10.5		7.16	6.6		15.2	16.3	17.2		19.1		21.5	22.4	23.5	24.5				convex sided , simple rim
2029	2.1	7	4.1	5.5	6.2	7.1		21		13	12.46	7.2		15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3	25.1	26.1	27.4	pedestelled base
2030	2.1	7	4.1	5.5	6.2	7.1		22		15	9.13	8		15.2	16.3	17.2		19.2		21.5	22.4	23.3	24.3				pedestelled base
2031	2.1	7	4.1	5.1	6.1	7.1	22		10.6		10.33	5.8		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.5				externally projected rim
2032	2.1	7	4.1	5.1	6.1	7.1	19		9.86		9.35	7.4		15.3	16.2	17.4		19.6		21.13	22.1	23.2	24.2				externally projected rim
2033	2.1	7	4.1	5.2	6.1	7.1	22		8.35			5.4		15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				internally beaked
2034	2.1	7	4.1	5.1	6.1	7.1	15		10.1		10.28	5.7		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
2035	2.7	7	4.1	5.4	6.1	7.1	17		8.04		6	4.4	14	15.2	16.3	17.2		19.2		21.5	22.1	23.5	24.3				externally projected rim
2036	2.1	7	4.1	5.1	6.1	7.1	11		5.37		3.56	2.7		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
2037	2.2	7	4.2	5.3	6.1	7.1	40		14.2		13.02	9.8	29	15.2	16.3	17.3		19.5		21.14	22.7	23.2	24.3				bilaterally projected rim
2038	2.7	7	4.1	5.2	6.1	7.1	31		10.2		14.22	5.7	22	15.2	16.3	17.3		19.1		21.4	22.7	23.3	24.3	25.1	26.1	27.4	internally beaked
2039	2.7	7	4.1	5.2	6.1	7.1	31		12.4		8.01	7.2	19	15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3	25.1	26.1	27.4	internally beaked

2040	2.1	7	4.1	5.1	6.2	7.1		7		5.3	6.15			15.2	16.3	17.3		19.7		21.12	22.5	23.3	24.3				
2041	2.1	7	4.1	5.1	6.2	7.1		9		6.7	5.64			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
2042	2.1	7	4.1	5.3	6.1	7.1	29		14.1		11.12	10	28	15.2	16.3	17.2		19.2		21.5	22.5	23.3	24.3				internally beaked
2043	2.1	7	4.1	5.1	6.1	7.1	22		15.7		11.07	8.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
2044	2.1	7	4.1	5.1	6.1	7.1	16		8.44		8.62	6.4		15.3	16.2	17.3		19.5		21.9	22.7	23.2	24.2				externally projected rim
2045	2.1	7	4.1	5.4	6.1	7.1	16		9.04		6.33	6.4	17	15.2	16.3	17.2		19.2		21.5	22.7	23.3	24.3				externally projected rim
2046	2.1	7	4.1	5.1	6.1	7.1	15		10.7		8.06	7.5		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
2047	2.1	7	4.1	5.1	6.1	7.1	16		10.4		9.26	7.3		15.4	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
2048	2.1	7	4.1	5.2	6.1	7.1	30		11		10.74	7.9	21	15.2	16.3	17.2		19.1		21.4	22.4	23.3	24.3				internally beaked
2049	2.1	7	4.1	5.1	6.2	7.1		6		6.4	7.61			15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				
2050	2.1	7	4.1	5.4	6.1	7.1	16		6.86		6.41	5.4	13	15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.3				externally projected rim
2051	2.1	7	4.1	5.4	6.1	7.1	16		8.64		7.54	7.3	17	15.2	16.3	17.2		19.4		21.7	22.5	23.5	24.5				internally beaked
2052	2.1	7	4.1	5.2	6.1	7.1	24		11.4		8.8	5.6	19	15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.5				externally more projected rim
2053	2.2	7	4.2	5.2	6.1	7.1	28		10.3		11.95	6.3	26	15.2	16.3	17.2		19.1		21.4	22.1	23.3	24.3				internally beaked
2054	2.1	7	4.1	5.3	6.1	7.1	28		10.8		14.81			15.3	16.2	17.4		19.5		21.8	22.6	23.3	24.3				externally more projected rim
2055	2.1	7	4.1	5.2	6.1	7.1	30		12.1		10.08	8	24	15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				internally beaked
2056	2.1	7	4.1	5.1	6.1	7.1	18		11.6		7.07	8.8	17	15.3	16.2	17.3		19.6		21.14	22.1	23.3	24.3	25.1	26.1	27.4	externally projected rim
2057	2.1	7	4.1	5.2	6.1	7.1	26		11.3		8.13	7.1	19	15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				internally beaked
2058	2.1	7	4.1	5.3	6.1	7.1	30		10.5		9.33	8.3	20	15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.5				externally projected rim
2059	2.1	7	4.1	5.1	6.1	7.1	15		8.23		6.75	5.2		15.2	16.3	17.3		19.1		21.4	22.4	23.5	24.3				externally projected rim
2060	2.3	7	4.3	5.2	6.1	7.1	28		8.35		8.43	5.8		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
2061	2.8	7	4.1	5.1	6.1	7.1	26		10.7		6.62	4.3		15.2	16.3	17.3		19.1		21.13	22.1	23.5	24.3				shoert beaked
2062	2.1	7	4.1	5.1	6.1	7.1	28		10.9		8.56	6.6		15.3	16.2	17.4		19.6		21.13	22.1	23.5	24.2				externally projected rim
2063	2.2	7	4.2	5.1	6.2	7.1		12		6	6.48			15.2	16.3	17.3		19.5		21.8	22.6	23.5	24.5				
2064	2.1	7	4.1	5.1	6.1	7.1	11		9.25		6.66	6.1	10	15.2	16.3	17.3		19.3		21.7	22.5	23.5	24.3				internally beaked
2065	2.1	7	4.1	5.5	6.2	7.1		20		7.1	6.68	4.2		15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.3				pedestelled base
2066	2.1	7	4.1	5.1	6.1	7.1	10		5.88		3.89	4.7		15.2	16.3	17.3		19.2		21.5	22.5	23.5	24.3				externally projected rim
2067	2.7	7	4.1	5.1	6.1	7.1	12		5.73		5.57	4.7		15.2	16.3	17.1		19.1		21.14	22.1	23.5	24.3				externally projected
2068	2.1	7	4.1	5.1	6.1	7.1	7		5.33		4.32	4.3		15.2	16.3	17.4		19.2		21.5	22.4	23.5	24.3				externally projected rim
2069	2.1	7	4.1	5.4	6.1	7.1	10		6.81		5.04	4.6	9.5	15.2	16.3	17.3		19.2		21.5	22.1	23.5	24.3				externally projected rim
2070	2.1	7	4.1	5.1	6.2	7.1		5		7.6				15.2	16.3	17.4		19.6		21.13	22.1	23.5	24.5				

2071	2.1	7	4.1	5.4	6.1	7.1	18		11.4		9.09	7.5		15.4	16.2	17.4		19.2		21.5	22.7	23.3	24.3				externally projected rim
2072	2.2	7	4.1	5.1	6.1	7.1	9		5.26		4.13	5.1		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.3				externally projected
2073	2.1	7	4.2	5.1	6.1	7.1	9		4.96		3.52	4		15.2	16.3	17.3		19.5		21.9	22.5	23.3	24.3				externally projected rim
2074	2.1	7	4.1	5.2	6.1	7.1	48		13.1		15.33	11	36	15.2	16.3	17.3		19.1		21.4	22.1	23.3	24.3				externally more projected
2075	2.1	7	4.1	5.1	6.1	7.1	16		9.24		7.58	6.9		15.3	16.2	17.4		19.6		21.14	22.7	23.2	24.2				externally projected rim
2076	2.8	7	4.1	5.1	6.2	7.1		7		5.5	4.34			15.3	16.3	17.3		19.7		21.7	22.5	23.5	24.3				
2077	2.1	7	4.1	5.1	6.1	7.1	15		9.25		8.54	4.4		15.4	16.2	17.4		19.6		21.14	22.7	23.2	24.2				externally projected rim
2078	2.1	7	4.1	5.4	6.1	7.1	26		11.9		8.15			15.3	16.2	17.4		19.5		21.9	22.7	23.2	24.2				concave sided bowl
2079	2.2	7	4.1	5.4	6.1	7.1	18		7.18		5.34	5.1	16	15.2	16.3	17.3		19.2		21.6	22.1	23.3	24.3				externally projected rim
2080	2.1	7	4.1	5.4	6.1	7.1	15		9.31		9.7	5.4		15.4	16.1	17.4		19.6		21.13	22.1	23.2	24.2				concave sided bowl
2081	2.1	7	4.1	5.1	6.2	7.1		4			6.15			15.2	16.3	17.3		19.2		21.13	22.1	23.2	24.3				
2082	2.1	7	4.1	5.1	6.1	7.1	14		6.17		4.8	4.6	12	15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3	25.1	26.1	27.4	externally projected rim
2083	2.2	7	4.2	5.1	6.1	7.1	10		6.53		4.05	3.9		15.2	16.3	17.3		19.6		21.4	22.9	23.3	24.3				externally projected rim
2084	2.8	7	4.1	5.1	6.1	7.1	16		6.44		4.29	5.5		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				flaring rim
2085	2.1	7	4.1	5.4	6.1	7.1	12		7.38		5.13	4.3	9.1	15.2	16.3	17.3		19.2		21.5	22.1	23.2	24.3				externally projected rim
2086	2.1	7	4.1	5.4	6.1	7.1	11		6.2		5.39	4.9	9.1	15.2	16.3	17.3		19.5		21.9	22.1	23.5	24.3				externally projected rim
2087	2.1	7	4.1	5.4	6.1	7.1	12		5.43		4.02	3.8	7.6	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				externally projected rim
2088	2.1	8	4.1	5.1	6.1	7.1	44		14.7		13.18	4.9	38	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				beaked rim
2089	2.1	8	4.1	5.1	6.1	7.1	48		13.3		13.49	9.3	38	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				beaked rim
2090	2.4	8	4.4	5.5	6.2	7.1		38		11	12.63			15.2	16.3	17.3		19.4		21.8	22.9	23.3	24.3				pedestelled base
2091	2.2	8	4.1	5.3	6.1	7.1	40		12.3		11.91	8.2	18	15.2	16.3	17.3		19.5		21.8	22.1	23.3	24.3				bilaterally projected rim
2092	2.1	8	4.1	5.1	6.1	7.1	32		17		9.9	8.5		15.3	16.2	17.4		19.3		21.7	22.1	23.2	24.2				externally projected rim
2093	2.1	8	4.1	5.3	6.1	7.1	48		10.5		13.74	7.3	30	15.3	16.1	17.4		19.5		21.9	22.1	23.3	24.3				internally beaked
2094	2.2	8	4.1	5.5	6.2	7.1		32		9.4	9.86			15.2	16.3	17.2		19.5		21.12	22.7	23.5	24.3	25.1	26.1	27.4	pedestelled base
2095	2.1	8	4.1	5.1	6.1	7.1	16		10.9		8.14	9.4		15.4	16.2	17.4		19.2		21.6	22.5	23.2	24.2				externally projected rim
2096	2.1	8	4.1	5.1	6.1	7.1	32		11.5		11.05	7.2		15.3	16.2	17.4		19.5		21.9	22.1	23.3	24.3				externally projected rim
2097	2.1	8	4.1	5.3	6.1	7.1	32		15.2		12.15	10	34	15.2	16.3	17.3		19.3		21.7	22.5	23.3	24.3				externaly projected rim
2098	2.1	8	4.1	5.1	6.2	7.1		5		8.5	7.84			15.2	16.3	17.2		19.5		21.9	22.1	23.5	24.3				
2099	2.1	8	4.1	5.1	6.2	7.1		4		3.9	4.85			15.2	16.3	17.3		19.5		21.13	22.1	23.3	24.3				
2100	2.1	8	4.1	5.1	6.1	7.1	9		5.35		4.95	4		15.2	16.3	17.3		19.1		21.13	22.1	23.2	24.3				externally projected
2101	2.1	8	4.1	5.1	6.1	7.1	30		14.7		11.6			15.3	16.2	17.4		19.6		21.13	22.1	23.5	24.2				externally projected rim
2102	2.1	8	4.1	5.1	6.1	7.1	10		10.4		7.72	5		15.4	16.1	17.4		19.6		21.13	22.7	23.5	24.5				externally projected rim

2103	2.7	8	4.1	5.2	6.1	7.1	27		11.9		8.75	7.6	19	15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				internally beaked
2104	2.1	8	4.1	5.1	6.2	7.1		5		11	4.77			15.2	16.3	17.3		19.6	20.4		22.1	23.5	24.3				
2105	2.1	8	4.1	5.1	6.1	7.1	32		12.6		12.3			15.3	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
2106	2.2	8	4.1	5.1	6.2	7.1		7		12	11.8			15.3	16.3	17.3		19.5		21.8	22.6	23.5	24.3				
2107	2.1	8	4.1	5.4	6.1	7.1	12				8.63	8.3		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				concave sided bowl
2108	2.1	8	4.1	5.1	6.1	7.1	15		7.58		10.1	6.4		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected rim
2109	2.1	8	4.1	5.4	6.1	7.1	16		7.27		7.27			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.2				externally projected rim
2110	2.1	8	4.1	5.1	6.1	7.1	11		8.66		4.2	5.6	12	15.2	16.3	17.1		19.5		21.9	22.1	23.3	24.3	25.1	26.1	27.3	flaring rim, elongated neck
2111	2.1	8	4.1	5.7	6.1	7.1	4		3.95		4.38	3.1		15.2	16.3	17.3		19.6		21.13	22.1	23.5	24.5				externally projected rim
2112	2.8	8	4.1	5.1	6.2	7.1		7		8.7	9.06			15.2	16.3	17.1		19.6		21.13	22.1	23.5	24.3				
2113	2.1	8	4.1	5.1	6.2	7.1		4			8.67			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.2				
2114	2.2	8	4.1	5.1	6.1	7.1	10		5.26		3.12	3.9		15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				externally projected, flaring
2115	2.1	8	4.1	5.1	6.1	7.1	15		9.77		7.97	6.3		15.4	16.1	17.4		19.6		21.13	22.7	23.2	24.2				externally projected
2116	2.4	8	4.4	5.3	6.1	7.1	40		10.5		10.55	5.3	32	15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				externally more projected
2117	2.2	8	4.1	5.1	6.2	7.1		7		6.5	8.67			15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				
2118	2.1	8	4.1	5.5	6.2	7.1		24		11	10.51	6.6		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				pedestelled base
2119	2.1	8	4.1	5.4	6.1	7.1	18		7.8		5.44	5.4	15	15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				externally projected rim
2120	2.1	8	4.1	5.4	6.1	7.1	15		7.57		5.79	4.9	15	15.2	16.3	17.2		19.5		21.9	22.7	23.5	24.3				externally projected rim
2121	2.2	8	4.1	5.5	6.1	7.1	24		10.2				6.2	15.2	16.3	17.2		19.6		21.12	22.1	23.3	24.3				beaked rim
2122	2.2	8	4.1	5.5	6.2	7.1		22		11	8.77	5.3		15.2	16.3	17.2		19.6		21.12	22.1	23.3	24.3				pedestelled base
2123	2.2	8	4.1	5.1	6.2	7.1		12		12	9.62			15.2	16.2	17.3		19.5		21.8	22.1	23.3	24.3				
2124	2.1	8	4.1	5.5	6.2	7.1		30		12	10.78	6.2		15.2	16.3	17.3		19.2		21.13	22.1	23.3	24.3				pedestelled base
2125	2.1	8	4.1	5.1	6.1	7.1	18		8.53		6.79	5.9		15.2	16.3	17.3		19.1		21.4	22.1	23.5	24.3				externally projected rim
2126	2.1	8	4.1	5.5	6.2	7.1		28		8.9	8.89	6		15.2	16.3	17.2		19.5		21.7	22.5	23.3	24.3				pedestelled base
2127	2.1	8	4.1	5.5	6.2	7.1		32		13	13.54	6.9		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				pedestelled base
2128	2.2	8	4.2	5.5	6.2	7.1		34		13	10.32	5.8		15.2	16.3	17.2		19.6		21.12	22.1	23.3	24.3				pedestelled base,
2129	2.1	8	4.1	5.5	6.2	7.1		24		9.2	10.7	5		15.2	16.3	17.2		19.1		21.8	22.1	23.3	24.3	25.1	26.1	27.4	pedestelled base
2130	2.2	8	4.1	5.1	6.2	7.1		8		13	9.33			15.2	16.3	17.2		19.4	20.3		22.6	23.2	24.2				
2131	2.2	8	4.1	5.1	6.2	7.1		11		12	10.21			15.2	16.3	17.3		19.6		21.8	22.1	23.3	24.3				
2132	2.1	8	4.1	5.3	6.1	7.1	26		10.4		10.21	7.1	23	15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				inrternally beaked rim
2133	2.2	8	4.1	5.1	6.1	7.1	30		11.5		11.7	5.3	34	15.2	16.3	17.2		19.2		21.12		23.3	24.3				beaked rim

2134	2.1	8	4.1	5.1	6.1	7.1	24		14.8		12.02	11		15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.2				externally projected rim
2135	2.1	8	4.1	5.1	6.1	7.1	15		9.95		10.9	7.9		15.3	16.3	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
2136	2.1	8	4.1	5.1	6.1	7.1	8		4.48		4.76	4.5		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally projected rim
2137	2.3	8	4.3	5.3	6.1	7.1	20		7.82		9.13	5	22	15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				externally more projected
2138	2.1	8	4.1	5.3	6.1	7.1	44		11.5		7.59	7.1	28	15.3	16.3	17.3		19.6		21.13	22.1	23.2	24.2				internally beaked
2139	2.1	8	4.1	5.1	6.1	7.1	26		12.5		16.08	8.1		15.2	16.3	17.2		19.6		21.13	22.7	23.2	24.2				externally projected rim
2140	2.1	8	4.1	5.1	6.2	7.1		8		9.3	8.37			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.5				
2141	2.2	8	4.1	5.4	6.1	7.1	18		7.28		6.88	4.8	16	15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				externally projected rim
2142	2.1	8	4.1	5.3	6.1	7.1	18		12.2		10.98			15.3	16.3	17.2		19.2		21.5	22.7	23.3	24.3	25.1	26.1	27.4	externally projected
2143	2.2	8	4.1	5.1	6.1	7.1	18		8.79		4.95	5.5	23	15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				shortbeaked rim
2144	2.2	8	4.1	5.3	6.1	7.1	22		12.8		10.61	5.7	30	15.2	16.3	17.2		19.5		21.8	22.6	23.3	24.3	25.1	26.2	27.3	externally more projected
2145	2.2	8	4.1	5.1	6.2	7.1	10		6.04		11.13			15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				
2146	2.1	8	4.1	5.7	6.1	7.1	7		5.47		6.9			15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				striaght sided rim
2147	2.1	8	4.1	5.3	6.1	7.1	26		8.95		10	5	22	15.2	16.3	17.2		19.2		21.8	22.6	23.2	24.2				short beaked rim
2148	2.1	8	4.1	5.1	6.1	7.1	15		9.58		8.9	5.3		15.2	16.3	17.2		19.1		21.13	22.1	23.5	24.3				externally projected rim
2149	2.1	8	4.1	5.3	6.1	7.1	26		8.17		7.97	6	17	15.2	16.3	17.2		19.5		21.9	22.1	23.3	24.3				bilaterally projected rim
2150	2.1	8	4.1	5.3	6.1	7.1	16		10.7		8.95	7.5		15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
2151	2.1	8	4.1	5.3	6.1	7.1	26		10.3		9.59	4.2	30	15.2	16.3	17.2		19.3		21.7	22.5	23.3	24.3				internally beaked rim
2152	2.1	8	4.1	5.1	6.2	7.1		4		10	5.1			15.2	16.3	17.2		19.4		21.13	22.1	23.3	24.3				
2153	2.1	8	4.1	5.3	6.1	7.1			11.4		7.28	5.4	28	15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.3				internally beaked
2154	2.3	8	4.3	5.1	6.2	7.1		4		10	6.58			15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				
2155	2.1	8	4.1	5.1	6.1	7.1	16		9.91		9.48	5.2		15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.2				externally projected rim
2156	2.1	8	4.1	5.4	6.1	7.1	16		9.15		7.7	5		15.3	16.3	17.3		19.6		21.13	22.1	23.2	24.2				incurved rim
2157	2.1	8	4.1	5.4	6.1	7.1	32		9.18		9.35	5.4		15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				incurved rim
2158	2.1	8	4.1	5.4	6.2	7.1		3		5.4	6.33			15.2	16.3	17.3		19.6		21.13	22.1	23.2	24.3				
2159	2.3	8	4.3	5.1	6.1	7.1	8		7.58		5.74	4.1		15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				short beaked
2160	2.3	8	4.3	5.1	6.1	7.1	12		6.21		6.99	5.3		15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				externally projected,
2161	2.2	8	4.1	5.1	6.2	7.1		7		7.6	8.16			15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				
2162	2.1	8	4.1	5.4	6.1	7.1	20		7.85		8.99	4.3		15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				incurved rim
2163	2.1	8	4.1	5.1	6.2	7.1	4			7.4	5.79			15.2	16.3	17.2		19.2		21.5	22.1	23.5	24.3				
2164	2.1	8	4.1	5.4	6.1	7.1			8.27		10.39	5.7		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				incurved rim
2165	2.3	8	4.3	5.1	6.2	7.1		5		9.9	5.37			15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.3				

2166	2.2	8	4.1	5.1	6.2	7.1		5		6.1	11.3			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.2				
2167	2.1	8	4.1	5.1	6.1	7.1	16		10.1		8.6	4.7	25	15.3	16.2	17.3		19.6		21.13	22.1	23.2	24.3				externally projected rim
2168	2.7	8	4.1	5.1	6.1	7.1	7		4.52		4.14	2.9		15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				flaring, elongated neck
2169	2.1	8	4.1	5.1	6.2	7.1		6		8.3	8.02			15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.5				
2170	2.1	8	4.1	5.4	6.1	7.1	15		7.52		5.18	6.3		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				incurved rim
2171	2.2	8	4.1	5.1	6.2	7.1		4		7.8	5.95			15.2	16.3	17.3		19.6		21.13	22.7	23.2	24.3				
2172	2.1	8	4.1	5.3	6.1	7.1	16		7.81		8.77	5.4	18	15.2	16.3	17.2		19.5		21.9	22.1	23.3	24.3				bilaterally projected rim
2173	2.1	8	4.1	5.1	6.2	7.1		5		13	10.69			15.2	16.3	17.3		19.6		21.12	22.1	23.5	24.3				
2174	2.1	8	4.1	5.5	6.2	7.1		16		7.8	10.1	4.7		15.2	16.3	17.3		19.2		21.13	22.1	23.5	24.3				pedestelledbase
2175	2.2	8	4.1	5.5	6.2	7.1		36		11	10.72	7.3		15.2	16.3	17.2		19.3		21.7	22.1	23.5	24.3				pedestelled base,
2176	2.2	8	4.1	5.3	6.1	7.1	28		10.8		10.15	5	29	15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				exterally more projected
2177	2.1	8	4.1	5.3	6.1	7.1	36		9.86		10.95	6		15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.5				exterally projected rim
2178	2.1	8	4.1	5.1	6.2	7.1		10		8.9	7.38			15.2	16.3	17.2		19.6		21.13	22.1	23.5	24.3				
2179	2.2	8	4.1	5.1	6.2	7.1		8		12	9.76			15.2	16.3	17.2		19.3		21.7	22.1	23.3	24.3				
2180	2.1	8	4.1	5.3	6.1	7.1	22		11.8		8.19	7.2	28	15.2	16.3	17.2		19.5		21.8	22.1	23.3	24.3				externally more projected
2181	2.1	8	4.1	5.1	6.1	7.1	16		11.6		7.55	8.2		15.5	16.1	17.3		19.6		21.13	22.7	23.2	24.2				externally more projected
2182	2.1	8	4.1	5.1	6.1	7.1	18		10.4		7.11	7.7		15.4	16.2	17.2		19.6		21.13	22.7	23.2	24.5				externally projected rim
2183	2.2	8	4.1	5.2	6.1	7.1	18		6.76		7.12	3.7	11	15.2	16.3	17.2		19.5		21.1	22.1	23.3	24.3				internally beaked
2184	2.3	8	4.3	5.4	6.1	7.1	16		7.33		6.47	4.3	13	15.2	16.3	17.3		19.6		21.12	22.9	23.3	24.3				internally beaked
2185	2.2	8	4.2	5.1	6.1	7.1	12		6.65		5.36	4.4		15.2	16.3	17.3		19.5		21.8	22.6	23.5	24.5				flaring, drooping rim
2186	2.1	8	4.1	5.3	6.1	7.1	26		10.8		11.14	7	22	15.5	16.2	17.4		19.7		21.3	22.1	23.3	24.3				internally beaked
2187	2.1	8	4.1	5.4	6.1	7.1	11		6.84		6.34	3.2	10	15.2	16.3	17.3		19.2		21.5	22.4	23.3	24.3				internally beaked
2188	2.1	8	4.1	5.3	6.1	7.1	28		11.1		9.85	4.8	30	15.2	16.3	17.2		19.4		21.8	22.1	23.3	24.3				externally more projected
2189	2.1	8	4.1	5.1	6.1	7.1	42		15.2		12.98	7.1	33	15.2	16.3	17.3		19.4		21.7	22.5	23.3	24.3				beaked rim .thick
2190	2.1	8	4.1	5.4	6.1	7.1	15		8.61		8.83	4.6		15.4	16.2	17.4		19.4		21.8	22.7	23.5	24.5				externally projected rim
2191	2.2	8	4.1	5.5	6.2	7.1		16		12	10.13			15.2	16.3	17.3		19.3		21.7	22.5	23.5	24.5				pedestelled base ,
2192	2.1	8	4.1	5.1	6.1	7.1	18		11.5		9.27	7.9		15.3	16.2	17.4		19.6		21.14	22.1	23.5	24.5				short beaked rim
2193	2.1	8	4.1	5.1	6.1	7.1	18		12.7		12.63	8		15.3	16.2	17.4		19.6		21.14	22.1	23.5	24.5				externally projected rim
2194	2.1	8	4.1	5.1	6.1	7.1	15		10.5		7.44	5.1		15.4	16.2	17.4		19.6		21.14	22.7	23.5	24.5				externally projected ,
2195	2.1	8	4.1	5.1	6.1	7.1	16		9.51		8.21	3.9		15.4	16.2	17.4		19.2		21.5	22.7	23.3	24.3				externally projected rim
2196	2.1	8	4.1	5.1	6.1	7.1	8		6.3		4.53	3.8		15.4	16.2	17.4		19.6		21.13	22.7	23.3	24.3				externally projected rim
2197	2.1	8	4.1	5.5	6.2	7.1		26		10	8.21	4.6		15.2	16.3	17.3		19.5		21.9	22.7	23.5	24.3				pedestelled base ,

2198	2.8	8	4.1	5.1	6.1	7.1	26		11.2		8.85	6.4	26	15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				beaked rim
2199	2.2	8	4.2	5.1	6.1	7.1	24		11.2			5.7		15.2	16.3	17.2		19.4		21.8	22.6	23.3	24.3				externally projected
2200	2.1	8	4.1	5.1	6.1	7.1	16		12.8		7.98	9.8		15.3	16.2	17.4		19.6		21.13	22.1	23.3	24.3				externally projected rim
2201	2.1	8	4.1	5.1	6.1	7.1	16		10.9		9.37	7.1		15.4	16.1	17.4		19.6		21.13	22.7	23.2	24.5				externally projected rim
2202	2.1	8	4.1	5.1	6.1	7.1	18		11		10.23	4.5		15.4	16.2	17.4		19.6		21.14	22.7	23.5	24.5				short beaked rim
2203	2.1	8	4.1	5.1	6.1	7.1	20		10.4		8.05	6		15.4	16.2	17.4		19.6		21.14	22.7	23.5	24.5				externally projected rim
2204	2.1	8	4.1	5.1	6.1	7.1	16		8.74		8.46	7.2		15.4	16.2	17.4		19.6		21.14	22.7	23.5	24.5				short beaked rim
2205	2.2	8	4.1	5.1	6.1	7.1		6		8.2	8.13			15.2	16.3	17.3		19.5		21.13	22.1	23.5	24.3				
2206	2.1	8	4.1	5.4	6.1	7.1	16		10.1		2.81	6.9		15.2	16.3	17.2		19.5		21.8	22.1	23.3	24.3				internally beaked
2207	2.1	8	4.1	5.1	6.2	7.1		10		7.8	7.71			15.2	16.2	17.4		19.6		21.13	22.1	23.3	24.3				
2208	2.2	8	4.2	5.1	6.1	7.1	9		5.67		3.55	2.8		15.2	16.3	17.3		19.5		21.8	22.6	23.3	24.3				externally projected rim
2209	2.7	8	4.1	5.1	6.1	7.1	14		7.18		6.26	3.7		15.2	16.3	17.3		19.2		21.13	22.1	23.5	24.5				externally projected
2210	2.7	8	4.1	5.4	6.1	7.1	9		4.93		4.21	4.3	7.9	15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				externally projected rim
2211	2.1	8	4.1	5.1	6.1	7.1	6		4.37		3.74	2.9		15.2	16.3	17.3		19.6		21.13	22.1	23.3	24.3				internally beaked
2212	2.1	8	4.1	5.1	6.1	7.1	12		7.65		8.31	3.8		15.3	16.2	17.3		19.6		21.13	22.1	23.5	24.5				externally projected, flaring
2213	2.1	8	4.1	5.1	6.1	7.1	14		8.96		5.99	5.9		15.2	16.3	17.3		19.5		21.8	22.1	23.3	24.3	25.1	26.1	27.4	externally projected rim
2214	2.7	8	4.1	5.8	6.1	7.1	7		6.34					15.2	16.3	17.3		19.5		21.9	22.1	23.3	24.3				externally projected flaring
2215	2.7	9	4.1	5.2	6.1	7.1	40		12.1		10.49	4.8	26	15.2	16.3	17.2		19.2		21.5	22.1	23.3	24.3				internally beaked
2216	2.1	9	4.1	5.3	6.1	7.1	32		11		8.34	6.9		15.2	16.3	17.3		19.6		21.14	22.1	23.3	24.3				externally more projected
2217	2.3	9	4.3	5.1	6.2	7.1		5		8.8	8.56			15.2	16.3	17.3		19.6		21.12	22.9	23.5	24.5				
2218	2.1	9	4.1	5.5	6.2	7.1		24		8.4	9.42	3.8		15.2	16.3	17.3		19.1		21.13	22.1	23.3	24.3				pedestelled base
2219	2.7	9	4.1	5.1	6.2	7.1		4			5.21			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.3				
2220	2.1	9	4.1	5.1	6.1	7.1	40		14.3		15.36	5.9	34	15.3	16.2	17.4		19.2		21.5	22.1	23.3	24.3				externally projected
2221	2.1	9	4.1	5.3	6.1	7.1	42		12.4		12.34	8.1		15.3	16.2	17.4		19.6		21.13	22.7	23.2	24.2				externally projected,
2222	2.1	9	4.1	5.3	6.1	7.1	32		10.6		12.17	5.6		15.2	16.3	17.3		19.5		21.8	22.1	23.3	24.3				externally more projected rim
2223	2.1	9	4.1	5.3	6.1	7.1	30		10.6		9.08	6.1	28	15.2	16.3	17.3		19.6		21.8	22.1	23.3	24.3				externally more projected rim
2224	2.2	9	4.1	5.1	6.2	7.1		7		10	8.79			15.2	16.3	17.3		19.6		21.8	22.1	23.2	24.3				
2225	2.4	9	4.4	5.1	6.2	7.1		10	8.31		8.5			15.2	16.3	17.3		19.6		21.12	22.9	23.5	24.3				
2226	2.7	9	4.1	5.3	6.1	7.1	30		10.9		9.67	6.8	35	15.2	16.3	17.3		19.6		21.11	22.1	23.3	24.3				internally beaked rim
2227	2.1	9	4.1	5.1	6.1	7.1	44		14.1		17.98	5.6	38	15.2	16.3	17.3		19.2		21.13	22.1	23.3	24.3				thick beaked rim

2228	2.1	9	4.1	5.1	6.1	7.1	15		9.54		9.57	6.8	20	15.2	16.2	17.4		19.6		21.13	22.1	23.3	24.3				short beaked rim
2229	2.3	9	4.3	5.1	6.1	7.1	24		17.8		11.13	7.3	38	15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				externally projected,
2230	2.2	9	4.1	5.1	6.2	7.1		8		11	8.87			15.3	16.3	17.3		19.4		21.8	22.6	23.5	24.5				
2231	2.2	9	4.1	5.1	6.2	7.1		10		8.3	8.71			15.2	16.3	17.3		19.6		21.14	22.1	23.5	24.5				
2232	2.1	9	4.1	5.1	6.2	7.1		5		9.6	9.65			15.2	16.3	17.2		19.6		21.14	22.1	23.5	24.3				
2233	2.2	9	4.1	5.3	6.1	7.1			13		11.73	5.8	24	15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				bilaterally projected rim
2234	2.4	9	4.4	5.3	6.1	7.1	26		15.3		16.35	9.7		15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				externally more projected
2235	2.3	9	4.3	5.1	6.2	7.1		10		5.8	9.54			15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.2				
2236	2.1	9	4.1	5.1	6.2	7.1		4			6.66			15.2	16.3	17.2		19.2		21.13	22.1	23.5	24.3				
2237	2.1	9	4.1	5.4	6.1	7.1	24		11		12.78	7.1		15.3	16.2	17.4		19.1		21.4	22.7	23.3	24.3				concave sided bowl
2238	2.8	9	4.1	5.1	6.1	7.1	20		8.3		5.66	4.4	23	15.2	16.3	17.2		19.6		21.13	22.1	23.3	24.3				beaked rim
2239	2.1	9	4.1	5.1	6.1	7.1	17		8.32		10.45	5.8		15.2	16.3	17.3		19.6		21.14	22.7	23.2	24.2				externally projected rim
2240	2.1	9	4.1	5.3	6.1	7.1			11.9		8.79	5.4	34	15.2	16.3	17.3		19.2		21.5	22.1	23.3	24.3				bilaterally projected rim
2241	2.2	9	4.1	5.1	6.2	7.1		8		7.7	7.37			15.2	16.3	17.3		19.6		21.12	22.9	23.2	24.2				
2242	2.8	9	4.1	5.1	6.1	7.1	14		7.73		8.56	4.3		15.2	16.3	17.3		19.6		21.14	22.1	23.2	24.3				beaked rim
2243	2.1	9	4.1	5.1	6.1	7.1	20		10.3		9.62	4.5		15.3	16.3	17.2		19.2		21.5	22.7	23.3	24.3				externally projected rim
2244	2.1	9	4.1	5.1	6.1	7.1	19		10.9		5.3	4.8		15.3	16.3	17.3		19.2		21.13	22.1	23.3	24.3				short beaked rim
2245	2.1	9	4.1	5.4	6.1	7.1	10		6.22		3.92	4.4		15.2	16.3	17.2		19.6		21.14	22.1	23.3	24.3				externally projected rim
2246	2.1	9	4.1	5.3	6.1	7.1	18		10.4		9.5	5.7	21	15.2	16.3	17.2		19.4		21.5	22.1	23.3	24.3				internally beaked rim
2247	2.1	9	4.1	5.1	6.1	7.1			10		5.95	7.1		15.4	16.2	17.4		19.6		21.13	22.7	23.5	24.5				externally projected rim
2248	2.3	9	4.3	5.1	6.1	7.1	16		7.08		7.16	4		15.2	16.3	17.2		19.6		21.12	22.5	23.3	24.3				beaked rim
2249	2.1	9	4.1	5.4	6.1	7.1	15		7.47		7.44	5.1	14	15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.2				externally projected rim
2250	2.1	9	4.1	5.4	6.1	7.1	10		4.87		5.02	3.7	8.5	15.2	16.3	17.3		19.2		21.13	22.1	23.2	24.2				externally projected rim
2251	2.1	9	4.1	5.1	6.1	7.1	26		8.73		7.74	4.7	16	15.2	16.3	17.2		19.7		21.3	22.6	23.3	24.3				beaked rim
2252	2.1	9	4.1	5.1	6.1	7.1	16		11.2		8.78	8.1		15.4	16.3	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
2253	2.1	9	4.1	5.1	6.1	7.1	20		13.3		8.73	7		15.4	16.2	17.3		19.6		21.13	22.7	23.2	24.2				externally projected rim
2254	2.1	9	4.1	5.1	6.1	7.1	16		9.78		8.53	7.3		15.3	16.3	17.2		19.6		21.13	22.7	23.2	24.2				externally projected rim
2255	2.3	9	4.3	5.1	6.1	7.1	18		8.47		5.47	4.6	17	15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				externally projected rim
2256	2.1	9	4.1	5.1	6.1	7.1	18		5.73		5.01	5.4	20	15.4	16.2	17.3		19.6		21.13	22.1	23.2	24.5				externally projected rim
2257	2.2	10	4.2	5.1	6.2	7.1		6		4	6.19			15.2	16.3	17.3		19.5		21.8	22.6	23.3	24.3				
2258	2.2	10	4.1	5.3	6.1	7.1	22		12.6		11.56	4.7	33	15.2	16.3	17.3		19.6		21.12	22.5	23.3	24.3				internally beaked rim
2259	2.3	10	4.3	5.1	6.1	7.1	15		9.38		6.41	5.9	19	15.2	16.3	17.3		19.6		21.12	22.5	23.3	24.3				short beaked rim

2260	2.1	10	4.1	5.1	6.2	7.1		13		9				15.2	16.3	17.2		19.2		21.5	22.4	23.2	24.2				
2261	2.3	10	4.3	5.4	6.1	7.1	15		8.87		6.34	5.6	18	15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.2				beaked rim
2262	2.1	10	4.1	5.4	6.1	7.1	23		13.7		11.3			15.4	16.2	17.4		19.5		21.8	22.7	23.2	24.2				incurved rim
2263	2.3	10	4.3	5.1	6.1	7.1	15		8.29		3.41	5	19	15.2	16.3	17.2		19.5		21.8	22.6	23.2	24.2				beaked rim
2264	2.1	10	4.1	5.1	6.1	7.1	16		8.35		8.72	6.2		15.4	16.2	17.3		19.6		21.13	22.7	23.2	24.2				beaked rim
2265	2.3	10	4.3	5.1	6.2	7.1		5		5.8	6.03			15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.2				
2266	2.2	10	4.1	5.3	6.1	7.1	30		14.6		9.44	6.6		15.2	16.3	17.2		19.6		21.12	22.1	23.3	24.3				externallyjected rim
2267	2.1	10	4.1	5.1	6.1	7.1	20		8.53		8.53	4.8	23	15.2	16.3	17.2		19.2		21.5	22.4	23.3	24.3				externally projected rim
2268	2.3	10	4.3	5.1	6.2	7.1		10		9.1	8.76			15.2	16.3	17.2		19.6		21.12	22.9	23.2	24.2				
2269	2.2	10	4.1	5.1	6.1	7.1	10		4.71		1.78	5.1		15.2	16.3	17.3		19.6		21.12	22.1	23.3	24.3				externally projected rim
2270	2.3	10	4.3	5.1	6.1	7.1	15		8.15		4.99	3.9	15	15.2	16.3	17.2		19.6		21.12	22.9	23.3	24.3				externally projected rim
2271	2.2	10	4.1	5.1	6.2	7.1		5		7	8.19			15.2	16.3	17.3		19.6		21.12	22.1	23.2	24.2				
2272	2.2	10	4.1	5.1	6.2	7.1		7		14	13.22			15.2	16.3	17.2		19.6		21.13	22.1	23.2	24.3				

Appendix 4: Fabric Group Discription of Er13

Fabric Group A

The samples falling in this groups include 05(Buff Ware),735(Buff Ware), 06(Buff Ware), 02(RWBS), 284(Buff Ware).

Here the matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 5 to 10%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 80 to 110 microns. They are angular to sub angular in shape. The voids are rare. The clay is ferruginous in nature. Quartz followed by feldspar (Fresh +altered) dominate the section. Calcite and augite are present as part of matrix and also as inclusions. calcreates (fine calcareous aggregates)is also present throughout the section. The other inclusions mainly include a few iron oxides and grog. The fabric is well to moderately sorted and the grain size distribution is fairly unimodal to bimodal. Any orientation as such is not observable among the particles. The matrix has a color of deep dark. This may be due to the thickness of the section. It's quartz –feldspar fabric tempered with silt to medium sand.

Fabric Group A1

Samples falling in this sub group include 150(RWBS), 94(RWBS), 48(Buff Ware),90(RWBS), 24(RW),351(RW),162(RW).

The matrix is Non Pleochroic in Plain Polarized Light(PPL) and birefringent in Crossed Polarized Light(XPL). The frequency of Non-plastic inclusions ranges from 2 to 10%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 100 to 200 microns. They are angular to sub angular in shape. The voids are rare. Clay is ferruginous in nature .Quartz followed by feldspar (Fresh +altered) dominate the section. Calcite and augite are present as part of matrix and also as inclusions. Augite and olivine is also present in the section. Some rock and ironoxide is also present in the section but it does not come under the cross wire while doing point counting. The fabric is well to

moderately sorted and the grain size distribution is inequigranular. The matrix is deep red in color. Here silt to very fine sand is used as tempering material.

Fabric Group B

Samples falling in this group include 439(Buff Ware), 739(RW), 165(RW), 196(RW), 639(RW), 722(RW), 393(RW), 728(RWBS), 44(RWBS), 453(Buff Ware)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 2 to 5%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 30 to 100 microns. They are angular to sub angular in shape. The voids are rare and are present in the form of grain fallouts. Clay is ferruginous. Quartz followed by altered feldspar dominates the section, calcite Augite is present as inclusions and minerals like olivine, biotite mica are present as matrix. Few Rocks (basalt) were also present in the section. Iron oxides and grog is also visible in the section. The fabric is moderate to well sorted and the grain size distribution is fairly unimodal. The particles show a parallel orientation. The matrix is dark brown in color. It's a quartz –feldspar fabric tempered with silt.

Fabric Group C

Samples falling in this group include 01(RWBS), 3(RW).

The matrix is Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 10 to 40%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 40to 50 microns. They are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. The clay is ferruginous. Quartz followed by feldspar (altered) dominates the section. Calcite and augite are present as inclusions along with plagioclase feldspar (fresh). calcreates (fine calcareous aggregates) is also present in the section . The fabric is ill to moderately sorted and the grain size distribution is inequigranular(nothing

Particular). The particle does not show any a particular orientation. The matrix is Light to dark brown in color. It's Quartz –Feldspar fabric even though the percentage of the calcite is much higher than the feldspar. It is because of the presence of the calcreates which were considered as calcite. It is silt to fine sand tempered.

Fabric Group D

Samples falling in this group include146 (Buff Ware), 702(RW), 106(RW), 26(RW).

The matrix is Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 10 to 30%. The size of the Non-plastic inclusions ranges from 120 to 300 microns. They are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. The clay is ferruginous in nature. Feldspar followed by Quartz dominates the section. , calcite is present as part of inclusion. Biotite and augite are present in the matrix. calcreates (fine calcareous aggregates) and a few pieces of rock and iron oxide is also present in the section . The fabric is ill to moderately sorted and the grain size distribution is fairly bimodel. The particle does not show any particular orientation. The matrix has a color of light brown to deep dark.Its a feldsparar- quartz fabric where feldspar dominates the section with more than 60%.it is fine to medium sand tempered.

Fabric Group D1

Samples falling in this group include, 233(Buff Ware), 411(RWBS), 240(RW),21(RWBS), 50(RWBS), 12(Buff Ware), 146(Buff Ware).

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light(XPL). The frequency of Non-plastic inclusions ranges from 5to 10%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 120 to 250 microns. They are angular to sub angular in shape. The voids are rare. The clay is ferruginous in nature. Quartz followe3d by altered feldspar dominates the entire section. Augite, Plagioclase feldspar, bio tite etc forms the part of matrix and are very

less in percentage.. calcreates (fine calcareous aggregates) are present as a part of the matrix. Eventhough Crushed rock pieces along with grog is also evident in the section does not encounterd under the cross wire while doing point counting. The fabric is moderately to well sorted and the grain size distribution is fairly bimodel. The particle does not show any a particular orientation. The matrix has altogether a dark brown color. The fabric is fall in the category of quartz –feldspar and is fine to medium sand tempered.

Fabric Group E

Samples falling in this group include, 678(RW), 426(RW), 673(Buff Ware), 729(RWBS), 480(RW), 07(Buff Ware), 03(RWBS), 446(RW), 460(Buff Ware), 713(RWBS)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from3 to 5%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 30 to 60 microns. They are angular in shape. The voids are rare. The clay is ferruginous in nature. Feldspar is the dominant mineral in the group along with calcite. Quartz is the other major minerals present. Mineral inclusions include augite, calcite, biotite etc. Calcreates (fine calcareous aggregates) are present as a part of the matrix. Grog and iron oxides are also present in the section but in a very minute quantity. The fabric is moderately to well sorted and the grain size distribution is fairly unimodal. The particle does not show any a particular orientation. The matrix is dark brown to light brown in color. It's feldspar – calcite fabric with silt as major tempering material.

Fabric Group F

Sample fall in this group include 36(RW)

The matrix is Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL).. The frequency of Non-plastic inclusions ranges from 10 to 20%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 100to 120 microns. They are angular to sub angular in shape. The voids are rare and

most of them are grain fall outs. The clay is ferruginous mixed with calcareous inclusions. Altered feldspar followed by biotite dominates the section. Mica, calcite are present as part of matrix and also as inclusions. The most characterizing feature is the presence of calcreates (fine calcareous aggregates). Quartz along with plagioclase feldspar is also present in the section. The fabric is poorly sorted and the grain size distribution is inequigranular (nothing Particular). The mica particles present in the section shows a parelell orientation towards the wall. The section is compact and is dark brown in color. The color may be due to the difference in penetration of heat. It is a Feldspar- mica fabric tempered with silt to fine sand.

Fabric group G

Samples falling in this group include 109(RW), 236(RW), 42(RW), 133(Buff Ware), 181(RWBS), 04(RWBS).

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 5to 10%. The size of the Non-plastic inclusions ranges from 120 to 180 microns. They are angular to sub angular in shape. The voids are rare. The clay is ferruginous mixed with calcareous inclusions .Feldspar and calcite is the dominating mineral in the groups. N Other minerals mainly include quartz, Augite and Olivine. Calcreates (fine calcareous aggregates) along with altered Plagioclase feldspar are present as a part of the matrix. Crushed rock pieces along with grog and few bioclasts materials were also present in the section. The fabric is moderately to well sorted and the grain size distribution is fairly bimodal. The particle does not show any a particular orientation. The section has a dark brown to deep red in color. It's a quartz-feldspar-calcite fabric and is silt tempered.

Fabric Group H

Samples falling in this group include 35(Buff Ware),447(RW),91(RW),488(RW),78(RW), 154(RWBS).

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from20 to 30%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 100 to 200 microns. They are angular to sub angular in shape. The voids are present and are mostly grain fall outs. The clay is ferruginous mixed with calcareous inclusions. Quartz is the dominating mineral in the groups plagioclase and calcite are the other two minerals present the section. , The other mineral inclusions include Mica,, biotite and augite but are very very less in quandity. So it does not come under the scanner while doing point counting. The fabric is moderately to poorly sorted and the grain size distribution is inequigranualr (nothing particular). The particle does not show any a particular orientation. The section is compact and is dark brown in color. It's quartz –feldspar fabric where fine to medium sand is used as tempering material.

Fabric Group I

Sample fall in this group include 247(RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from20 to 30%. The size of the Non-plastic inclusions ranges from 80 to100microns. They are angular in shape. The voids are present and are more in number. The clay is ferruginous mixed with calcareous inclusions. Calcite is the dominating mineral in the group, followed by feldspar and quartz. Other major inclusions include olivine, calcite, and augite. Mica etc and are less percentage. The fabric is poorly sorted and the grain size distribution is inequigranualr(nothing particular). The particle does not show any a particular orientation. The section has a deep brown in color. Even though -quartz is dominant in section, the presence of calcreates made it feldspar –calcite fabric. Here silt to very fine sand is used as tempering material.

Fabric J

Samples falling in this group include 449(RW), 756(RW), 726(RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light(XPL). The frequency of Non-plastic inclusions ranges from 15 to 60%. The size of the Non-plastic inclusions ranges from 80 to 110 microns. They are angular in shape. The voids are present. clay is mixed with ferruginous and calcareous inclusions. Plagioclase feldspar (altered and Fresh followed mica and calcite dominates the section, Augite, biotite are present as part of matrix and also as inclusions. Some fragments of Rock (basalt) is also visible in the section. The other inclusions mainly include some argilaceous materials, few iron oxides and grog. The fabric is well sorted and the grain size distribution is unimodal to bimodal. The particle does not show any orientation as such. The matrix has a color of deep brown or dark. It's a feldspar fabric and is tempered with silt to fine sand.

Appendix 4: Fabric Groups of Eo3

Fabric A

Samples falling in this group include, 1408(RW), 1504(RW), 1711(RW), 1209(RW), 1104(RW), 1305(BWRS), 2262(RW), 1055(RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent to fairly birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 40 to60%. The size of the Non-plastic inclusions ranges from 150 to 550 microns. They are angular to sub angular in shape, occasionally sub rounded grains are also present. The voids are present and most of them are grain fall outs. The clay is ferruginous. Quartz followed by feldspar (Altered and fresh) dominates the section. Other minerals present are mainly calcite and augite. Other inclusions mainly include iron oxides, and very few mica and crushed grog which forms as part of matrix. calcreates (fine calcareous aggregates)were also present in the section which forms a characteristic feature of the group. Another interesting feature is the presence of the f argillaceous inclusions in the section. The fabric is moderately sorted and the grain size distribution is more or less bimodal. The particle shows a parallel orientation. The color of the matrix varies from deep to light red. It could be due to

the varying thickness of the section. The group represents quartz –feldspar fabric and the tempering material varies from silt to coarse sand.

Fabric B

Samples falling in this group include, 2053(RWBS), 2199(RWBS), 2097(RW), 1012(RW), 1780(RW), 1729(RW), 1002(RW), 1019(RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent to fairly birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 40 to 50%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 60 to 500 microns. They are angular to sub angular in shape, . The voids are present and most of them are grain fall outs. The clay is ferruginous. Quartz, Altered feldspar dominates the section. Other minerals present mainly include plagioclase feldspar, and calcite. Minerals like mica and augite are also present as part of the matrix. Calcreates (fine calcareous aggregates) and few basaultic rocks were also present in the section, some iron oxide particles were also present throughout. The fabric is well to moderately sorted and the grain size distribution is more or less inequigranular(nothing particular). The particle does not show any orientation as such. The color of the matrix of the sections falls in the group is deep red. It's a quartz-feldspar fabric with the presence of calcite and is silt to medium sand tempered.

Fabric B1

Sample fall in this group include 1019(RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The color of the matrix varies from dark brown to deep red in color. The frequency of Non-plastic inclusions ranges from 40 to 50%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 450 to 500 microns. They are angular to sub angular in shape,. The voids are present and most of them are grain fall outs. The clay is ferruginous. Altered feldspar dominates the section.

Other minerals present mainly include plagioclase feldspar, calcite, quartz, etc are present as part of matrix and also as inclusions. Few basaltic rocks were also present in the section; some iron oxide particles were also present throughout the assemblage. The fabric is Poorly sorted and the grain size distribution is more or less inequigranular(nothing particular). The particle does not show any orientation as such. It's a feldspar fabric with silt to medium sand as tempering material.

Fabric C

The samples falling in this group include 1020 (RW), 1334 (RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The frequency of Non-plastic inclusions ranges from 10 to20%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 45 to 50 microns. They are angular to sub angular in shape. The voids are rare and most of them are grain fall outs. The clay is ferruginous mixed with micaceous inclusions. Mica and Altered feldspar are the dominant among minerals. Calcite augite and olivine are present as part of matrix and also as inclusions. The most characterizing feature is the presence of calcreates (fine calcareous aggregates). The fabric is poorly sorted and the grain size distribution is more or less unimodal. The particle shows a parallel orientation which is clearly visible from the mica particles which are neatly arranged in orientation to the matrix. Iron oxide patches are also present. The matrix of the sherds falling in this category has a light yellow in colour. It is mica – feldspar fabric with silt as temper.

Fabric D

Samples falling in this group include, 2234(BWRS), 1345(RW), 1866(RW), 1779(RW), 1056(RWBS)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and fairly birefringent in Crossed Polarized Light (XPL). The color of the matrix is dark brown.The frequency of Non-plastic inclusions ranges from 20 to 60%. The size of the Non-plastic inclusions ranges from

150 to 300 microns. They are angular to sub angular in shape. The voids are present and most of them are grain fall outs. The clay is ferruginous mixed with calcareous inclusions. Feldspar (altered and fresh) dominates the section with quartz as the second mineral. Other minerals present mainly include, calcite, olivine, augite etc. Few iron oxide particles along with crushed rocks are also visible in the section, even though very small to be get quantified. A notable feature is the presence of argillaceous inclusions. The fabric is poorly sorted and the grain size distribution is fairly bimodal. The particle does not show any particular orientation as such. The fabric is feldspar –quarts with the presence of calcite as well. It has medium to coarse sand as tempering material.

Fabric D1

Samples falling in this group include, 1652(RW), 1311(BWRS)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and fairly birefringent to birefringent in Crossed Polarized Light(XPL). The color of the matrix varies from light brown to deep red. The frequency of Non-plastic inclusions ranges from 40 to 50%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 150 to 200 microns. They are angular to sub angular in shape. The voids are present and most of them are grain fall outs. The clay is ferruginous mixed with calcareous inclusions. Like the parent group here also the feldspar dominates with quartz as the second and calcite as the third mineral. The only difference is the dominance of plagioclase feldspar in place of altered feldspar. Other minor minerals present in the section mainly include, feldspar (altered) calcite, olivine, etc. They are present as part of matrix and also as inclusions. A notable feature is the presence of argillaceous inclusions and few rock particles (Basalt). The fabric is moderate to poorly sorted and the grain size distribution is fairly bimodal. The particle does not show any particular orientation as such. It's a quartz-feldspar fabric with silt to fine sand as the tempering material.

Fabric E

Samples falling in this group include, 1176(Buff Ware), 1231(Buff Ware),, 1009(Buff ware), 1310(BWRS),1029(RW), 1402(RWBS)2045(RW), 2037(RWBS), 2138(RW), 2128(RWBS), 2255(Buff Ware), 1981(BWRS)

The matrix is Non Pleochroic in Plain Polarized Light(PPL) and fairly birefringent in Crossed Polarized Light(XPL). The color and all other features are same to the previous group. The frequency of Non-plastic inclusions ranges from 5 to20%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 60 to 300 microns. They are angular to sub angular in shape,. The voids are present and most of them are grain fall outs. The clay is ferruginous mixed with calcareous inclusions. Feldspar dominates the section with quartz as the second mineral and calcite as the third prominent mineral. But in point counting calcite happened to be the second mineral. Other minerals present mainly include, plagioclase feldspar, and mica and are present as part of matrix as well as part of inclusions. Some iron oxide particles were also present throughout the assemblage. Argillaceous inclusions along with few rock particles (Basalt) were also present in the section. Crypto crystalline calcite is also present as part of the section. The fabric is moderately sorted and the grain size distribution is fairly unimodal. The particles show a parallel orientation. It's quartz –feldspar fabric with very fine to silt tempered.

Fabric E1

Samples falling in this group include, 1425(RWBS), 1851(RW), 2225(BWRS), 1771(RW), 2054(RW), 2071(RW)

The matrix is Non Pleochroic in Plain Polarized Light (PPL) and birefringent in Crossed Polarized Light (XPL). The color of the matrix varies from light brown to deep red in color. The frequency of Non-plastic inclusions ranges from 30 to 60%. Most of the inclusions are present as the part of the matrix. The size of the Non-plastic inclusions ranges from 100 to 500 microns. They are angular to sub angular in shape,. The voids are present and most of

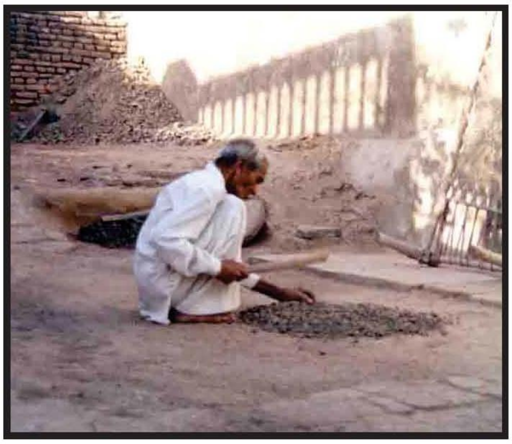
them are grain fall outs. The clay is ferruginous mixed with calcareous inclusions. Feldspar (Altered) dominates the section. Other minerals present mainly include, quartz, plagioclase feldspar, calcite, mica, and augite etc. Some iron oxide particles were also present throughout the assemblage. A notable feature is the presence of argillaceous inclusions and few rock particles (Basalt). The fabric is moderately sorted and the grain size distribution is fairly unimodal. The particle does not show any orientation as such. It's quartz –feldspar fabric with silt to medium coarse sand as tempering material.

Plates

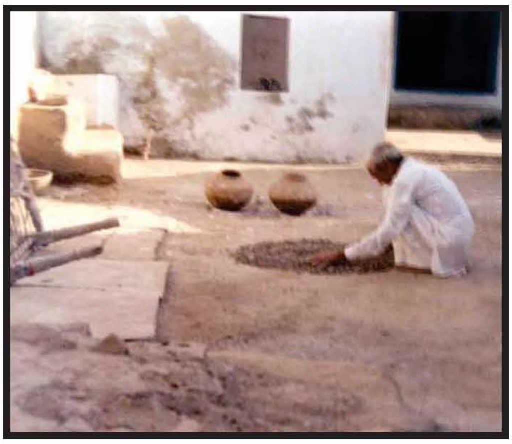
Plate 1A: Method of Pattery Manufacturing; Source and Processing of Raw Material.

Village Tank at Bagasra

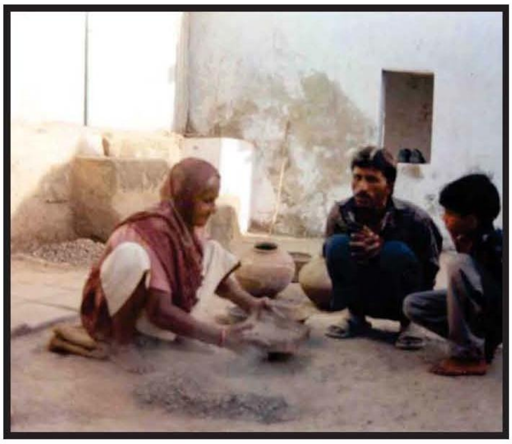
Forest Around Bagasra



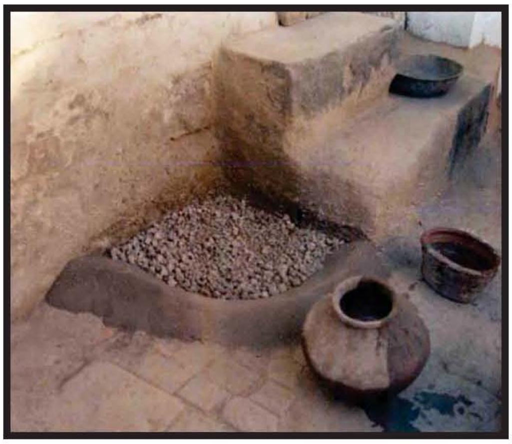
Crushing of Raw Material



Hand Picking



Seiving of Raw Material



Mixing of Raw Material

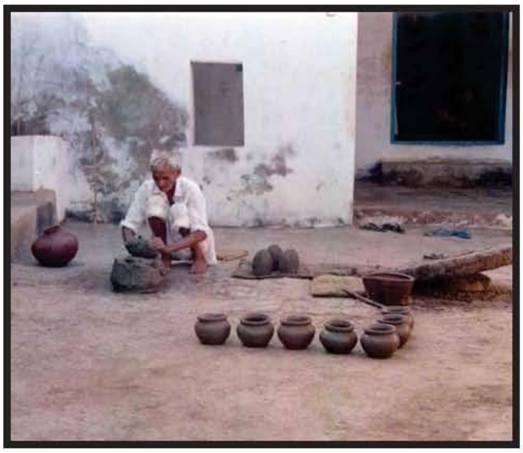
Plate 1B: Method of Manufacturing; Mixing and Throwing of Pindas into Wheel.

Addition of Inclusions

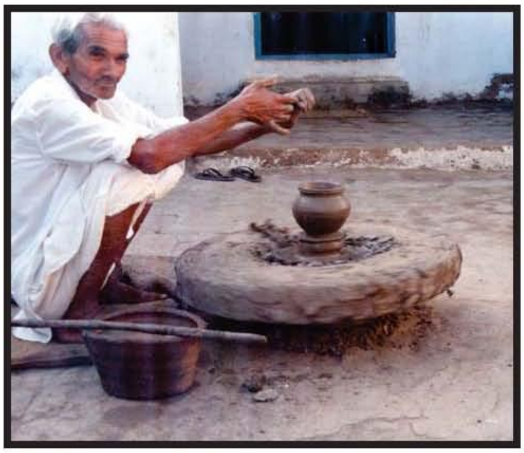
Preparation of Pinda

Throwing on Wheel

Using Stick for Rotating Wheel



Pindas for Throwing on Wheel



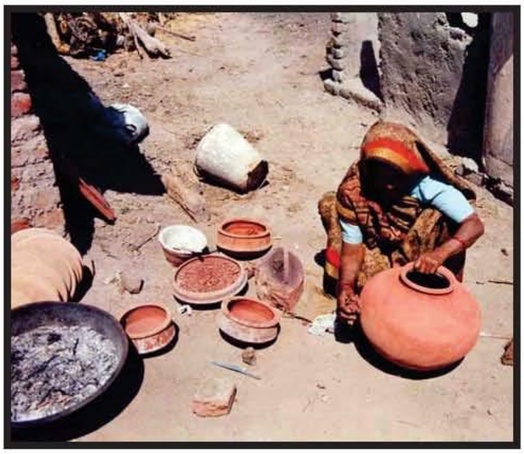
Vessel on a Wheel

Plate 1C: Method of Manufacturing; Cutting, Drying, Pddling, Pre and Post Friring Decorations.

Removal of Vessel Using Thread

Drying Vessesl in Shade

Paddling of Vessels



Application of Slip

Pottery Kiln

Post Firing Decoration